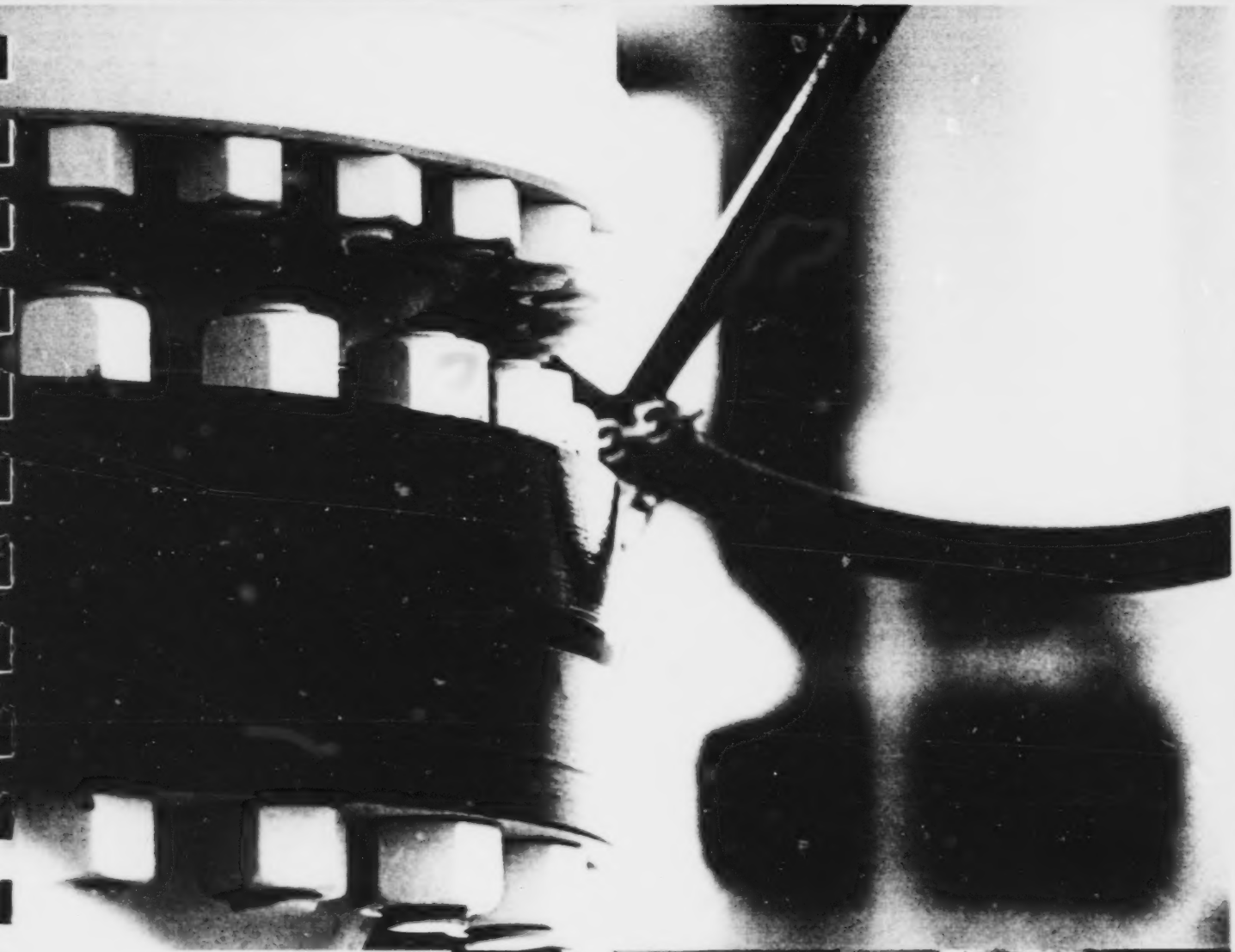

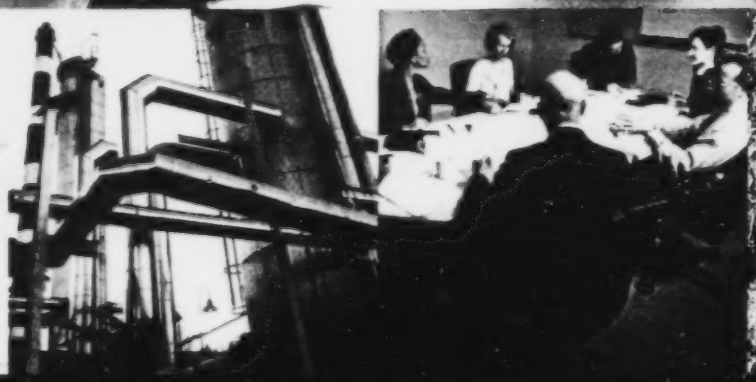

Public Safety and Sour Gas Semi-Annual Progress Report 2003

EUB Alberta Energy and Utilities Board

PS SG INITIATIVE

104-01549/

PS SG •INITIATIVE• EUB • 2003

Public Safety and Sour Gas Semi-Annual Progress Report

October 2003

EUB Alberta Energy and Utilities Board

ALBERTA ENERGY AND UTILITIES BOARD
Public Safety and Sour Gas Semi-Annual Progress Report

October 2003

Published by

Alberta Energy and Utilities Board
640 – 5 Avenue S.W.
Calgary, Alberta, Canada T2P 3G4

Telephone: (403) 297-8311
Fax: (403) 297-7040
Web site: www.eub.gov.ab.ca

For information requests specifically related to Public Safety and Sour Gas, contact the Public Safety Implementation Team:

Valerie Sikora: (403) 297-3726 (general inquiries)
Marilyn Craig: (403) 297-3194
Gary Neilson: (403) 297-8552
Greg Gilbertson: (403) 297-3648
e-mail: eub.publicsafety@gov.ab.ca

Contents

Overview 1

Background 1

Comment on Advisory Committee Evaluation of the EUB's Implementation Progress 2

PS&SG Project Status by Recommendation Category 4

Health Effects and Sour Gas Research 7

Recommendations 9 and 59: Health Effects Information for H_2S and SO_2 7

Recommendations 10 and 11: Develop Sour Gas Research Strategies 9

Recommendation 12: Establish Coordinated, Consistent Medical Response to H_2S Exposure 10

Recommendation 13: Establish a Sour Gas Exposure Registry to Track Individuals Who Have Experienced High-Level H_2S Exposure 11

Recommendation 67: Develop Personal H_2S Exposure Monitors 12

Sour Gas Development Planning and Approval 13

Recommendations 39 and 40: Rewrite *Guide 29: Hearing Process*; Make Hearings User Friendly 13

Recommendations 1, 2, and 84: Coordinate Involved Jurisdictions Regarding the Impact of Sour Gas on Public Safety and Ensure That Overlaps Are Handled Efficiently 14

Recommendation 5: Investigation of Improved Surface/Subsurface Planning 16

Recommendations 7, 32, and 33: Require Applicants to Consider Use of Existing Sour Gas Infrastructure and to Submit Information on Possible Future Development with Well Applications Where Sour Gas Is Involved Near People 19

Recommendations 17, 18, and 19: Standardize Dispersion Modelling and Risk Assessment 21

Recommendation 34: EUB/Government Agency Coordinated Policy and Application Review 23

Recommendations 38, 41, 42, 43, and 44: EUB Hearings and Decisions 25

Sour Gas Operations 29

Recommendation 8: Soften the Visual Impact and Impressions Effects of Sour Facilities 29

Recommendation 21: Review Requirements for Older Sour Gas Pipelines; Ensure There Is Adequate Attention to Corrosion Failures 30

Recommendation 22: Review Adequacy of Third-Party Damage Prevention for Sour Pipelines 31

Recommendation 23: Reclassification of Sweet Gas Facilities to Sour Service and Reactivating Older Sour Wells 32

Recommendation 24: Publicize Requirements to Convert Existing Pipelines to Sour Service 33

Recommendation 30: Accelerated Enforcement Where Noncompliance Threatens Health and Safety 34

Recommendation 50: Training for Alberta's Sour Gas Workers 35

Recommendations 52 and 53: Setback and Setback Implication Review on Surface Development 36

Recommendation 78: Mutual Aid Agreements Where There Are Multiple Operators in an Area ... 38

Emergency Preparedness 41

Recommendation 15: Follow-up on Major Releases of Sour Gas 41

Recommendation 66: Clarify and Coordinate Monitoring Roles and Responsibilities 42

Recommendations 55 and 56: Audit Process for Operator ERPs 43

Recommendations 57, 63, and 64: Emergency Management Guide and Requirements to Coordinate Responder Roles 44

Recommendations 58 and 62: Review Process for Defining EPZs and Require That ERPs Show H_2S/SO_2 Evacuation Zones 46

Information, Communication, and Consultation 49
Recommendation 71: Take Stringent Action for Poor Public Consultation 49
Recommendation 72: Questions to Assist the Public During Consultation 50
Recommendation 79: Determine Local Net Benefits from Sour Gas Development 51
Recommendation 83: The EUB Consider Forming an Aboriginal Advisory Committee 52
Recommendation 3: EUB/IOGC/INAC/First Nations Jurisdictional Issues 53
Recommendation 14: Awareness in First Nations Communities About Which Agencies Are Responsible for Health Services Related to Sour Gas 54
Recommendation 16: Review, Organize, and Enhance Access to EUB Data 56
Recommendation 31: Increase Availability of Information on Enforcement Actions 58
Recommendations 45 and 47: Perception of the EUB's Neutrality 59
Recommendation 46: EUB Role as Regulator for Public Safety 61
Recommendation 51: Use of Best Practices in Sour Gas Development 62
Recommendations 69, 70, and 74: Establish EUB Public Consultation Staff Resource Team 63
Recommendation 73: Establish EUB Information Office 65
Recommendation 75: Raise Public Awareness and Understanding of Sour Gas Issues and Provide Information to All Albertans 67
Recommendation 76: Raise Public Awareness and Understanding of Sour Gas Issues and Provide Clear, Understandable Information to All Albertans 68
Recommendation 77: Information on Key Operator Contacts, Telephone Numbers, and Facility Locations 69
Recommendation 80: Ongoing EUB Relationships with All Albertans 70
Recommendation 81: Public Consultation Materials—Role of EUB 71
Recommendation 82: Communications Systems Among First Nations, EUB, and Industry Operators 72

Appendix: Acronyms and Abbreviations 75

Overview

This is the 2003/2004 semi-annual progress report for the Alberta Energy and Utilities Board's (EUB's) Public Safety and Sour Gas (PS&SG) initiative. It reports on the work undertaken from April through September 2003 to address the 87 recommendations of the Provincial Advisory Committee on Public Safety and Sour Gas (Advisory Committee). This report is the first of the semi-annual reports and replaces the quarterly reporting cycle, as requested by the Advisory Committee.

Many of the recommendations have been grouped together to form single projects. The full text of the original recommendations of the Advisory Committee is included with each project update. The projects are grouped into the following five categories:

- Health Effects and Sour Gas Research
- Sour Gas Development Planning and Approval
- Sour Gas Operations
- Emergency Preparedness
- Information, Communication, and Consultation

Stakeholder input remains a core component of the work being undertaken to address the recommendations, and all affected stakeholders are invited to participate. Stakeholders potentially impacted by actions taken to address recommendations are listed in each of the project updates. Since many of the same stakeholders are participating in a number of projects, the EUB is striving to coordinate work to address common issues and to ensure efficient use of our stakeholders' time.

Background

In January 2000, the EUB formed the Advisory Committee to review the regulatory system for sour gas as it relates to public health and safety. All major stakeholders (public, industry, government, and others) were represented on this 22-member committee, which undertook an extensive outreach program to gather information from Albertans residing near sour gas development areas.

Based on the input received, the Advisory Committee made 87 recommendations to the EUB for improving regulatory processes and the understanding of sour gas. The *Public Safety & Sour Gas Findings and Recommendations Final Report* (available on the Web at http://publicsafetyandsourgas.org) was published in December 2000.

Upon receiving the recommendations of the Advisory Committee, the EUB immediately established the Public Safety Implementation Team (PSIT) to develop an action plan for accomplishing these tasks and to coordinate ongoing implementation. Work on PS&SG began in April 2001, when PSIT published the *Public Safety and Sour Gas Implementation Plan: First Progress Report*. The EUB committed to addressing all 87 recommendations in a multiyear program.

To date, work on 58 recommendations is ongoing, 26 recommendations have been completed, and 3 recommendations remain to be started and are scheduled to begin before April 2004.

PSIT continues to ensure that the recommendations are being addressed and to report publicly twice a year. At the end of each fiscal year, an annual report is published, summarizing the year's work, as well as providing the schedule for the following year. All of the previous reports can be obtained from EUB Information Services (403-297-8190) or on the EUB Web site at http://www.eub.gov.ab.ca/bbs/default.htm.

Comment on Advisory Committee Evaluation of the EUB's Implementation Progress

In July 2003, the Advisory Committee issued its *Evaluation of the EUB's Implementation Progress,* which commented on work under way as reported in the *PS&SG Annual Progress Report (2003)*. The Advisory Committee acknowledged the "huge work load and daunting task" that addressing the recommendations is placing on the EUB and the challenges this presents. Overall, the Advisory Committee has noted the "commendable progress made to date" and observed that "many improvements in the sour gas arena have already been realized." However, the Advisory Committee expressed some general and specific concerns that require addressing. Many of the Advisory Committee's specific comments regarding the implementation progress are being addressed through ongoing work. These are discussed in the individual progress updates.

The Advisory Committee observed that as work progresses, "there are increasing interdependencies between the remaining implementation tasks." The EUB has also identified many linkages and common issues emerging between groups of recommendations and is taking steps to ensure that recommendations that could affect the progress of others are being addressed in a timely manner. Recently, PSIT held a strategic planning session to discuss the common issues that need to be or are being addressed through ongoing work. These have been identified as audit, technical, communication/consultation, training, and regulatory congruence. They span the five categories into which the recommendations have been grouped.

PSIT and other EUB staff are currently building a performance model based on both key issues and categories. This performance model will give an indication of the success of the PS&SG initiative as a whole in addressing the issues raised by the Advisory Committee. It will provide both accountability and a commitment to address areas where the EUB is not achieving the performance goals defined. Periodically, performance goals will be reviewed to ensure continued improvement related to EUB sour gas activities.

PSIT has scheduled a follow-up planning session in early November to discuss these common issues and how best to address them efficiently. Once development of the performance model has been completed, the details will be provided, likely in the next annual report. There will also continue to be quantifiable performance measures defined where these can be practically implemented. The details of these are or will be included in the individual project updates.

The emerging issue of interdependencies between recommendations is significant and is a major focus of EUB staff involved in addressing the recommendations, as well as of PSIT. It is expected that the Advisory Committee will be consulted on this issue in general, as well as on specific interdependency topic matters as they arise.

The Advisory Committee has noted the increasing trend for broadening the scope of the recommendations to address nonsour gas issues and is concerned that this could delay implementation of some of the recommendations. This approach was adopted in some instances to ensure that changes to EUB practices, policies, and regulations could be accomplished effectively. If additional work is being contemplated in future, the EUB will ensure that stakeholders are consulted before broadening the existing scope.

The individual progress updates contained in this report now provide estimated end dates for the projects. The EUB concurs with the Advisory Committee that an end date contributes to overall accountability; the project teams will endeavour to achieve the targets set. However, addressing many of the recommendations is a complex task, and as such these dates may change as the projects progress.

The EUB continues to appreciate the Advisory Committee's support as the PS&SG initiative progresses. This project remains a top priority within the EUB, and we rely on the feedback that the Advisory Committee provides to ensure that the issues behind the recommendations continue to be addressed. The EUB also welcomes comment and suggestions from all our stakeholders.

Refer to the Appendix on page 75 for a listing of acronyms and abbreviations used throughout this report.

PS&SG Project Status by Recommendation Category

Category	Rec #	Recommendation Subject	Completed	Continuing	Y3 Starts	End Date
Health Effects and Sour Gas Research	9, 59	Health effects information for H_2S and SO_2		•		Mar-04
	10, 11	Develop sour gas research strategies		•		Oct-04
	12	Establish coordinated, consistent medical response to H_2S exposure		•		Mar-05
	13	Establish high-level sour gas exposure registry to track high-level H_2S exposure		•		Mar-05
	67	Develop personal H_2S exposure monitors		•		
Sour Gas Development Planning and Approval	1, 2, 84	EUB work with other agencies to ensure that gaps in regulation and areas of overlap regarding the impact of sour gas on public safety are handled efficiently		•		Sep-04
	5	Taskforce investigation of improved surface/subsurface planning		•		Mar-05
	6	Plant proliferation	•			Jul-01
	7, 32, 33	Require applicants to consider use of existing sour gas infrastructure and to submit information on possible future development with well applications where sour gas is involved near people		•		Apr-04
	17, 18, 19	Standardize dispersion and risk assessment modelling		•		Mar-04
	20	Consolidate sour gas regulatory requirements into a concise summary document			•	Feb-05
	34	EUB/government/agency coordinated policy and application review		•		Mar-04
	35	Critical well prelicence review	•			Jul-01
	36	Licence application training/certification information requirement	•			Apr-02
	38, 41 – 44	EUB hearings and decisions		•		May-04
	39, 40	Rewrite *Guide 29* and make hearings user friendly	•			May-03
Sour Gas Operations	8	Soften visual impact and impression of sour facilities		•		Apr-04
	21	Review requirements for older sour gas pipelines; ensure adequate attention to corrosion failures		•		Dec-03
	22	Review adequacy of third-party damage prevention for sour pipelines		•		Dec-03
	23	Review requirements for approving reclassification of sweet gas facilities to sour service and for reactivating older sour wells		•		Apr-04
	24	Publicize requirements to convert existing pipelines to sour service		•		Jan-04
	25	Increase sour gas inspections	•			Dec-01
	26	Increase inspections of new and noncompliant operators	•			Mar-02
	27	Implement 100% inspection rate for complaint response/compliance	•			Mar-02
	28	Response to sour gas complaints	•			Apr-01
	30	Accelerated enforcement where noncompliance threatens health and safety		•		Nov-03
	49	Ensure that EUB sour gas related requirements continually reflect appropriate technology and practices			•	Dec-04
	50	Ensure that Alberta's sour gas workers have appropriate safety training		•		Sep-04
	52, 53	Setback and setback implication review of surface development		•		Apr-05
	68	Enhance EUB capability to monitor for complaint response/compliance	•			Mar-02
	78	Encourage development of mutual aid agreements where there are multiple operators in an area		•		Mar-04
	85	Complaint/incident response programs for Aboriginal communities	•			Mar-02

(continued)

PS&SG Project Status by Recommendation Category* (concluded)

Category	Rec #	Recommendation Subject	Completed	Continuing	Y3 Starts	End Date
Emergency Preparedness	15	Follow-up on major releases	•			Sep-03
	54, 60, 61	Interim policy on ERP review and reduced EPZs	•			Aug-01
	55, 56	Assess capability to implement ERP and increase ERP audits/tests		•		Sep-04
	57, 63, 64	ERP guide and requirements to coordinate responder roles		•		Dec-04
	58, 62	Review process for defining EPZ; require that ERPs show H_2S/SO_2		•		Mar-04
	65	Capability to monitor significant release events	•			Mar-03
	66	Clarify and coordinate monitoring roles and responsibilities	•			Jun-03
	87	Infrastructure/resources for Aboriginal community ERP	•			Nov-02
Information, Communication, and Consultation	3	EUB/IOGC/INAC/First Nations jurisdictional issues		•		Sep-04
	4	Create document and summary brochure outlining sour gas and public health and safety roles and responsibilities			•	Jan-05
	14	Increase awareness in First Nations communities about the agencies responsible for sour gas health services		•		Dec-04
	16	Review, organize, and enhance access to EUB data		•		Dec-05
	29	Field staff in industry-landowner discussion	•			Apr-01
	31	Increase availability of information on enforcement actions		•		Jun-04
	37	EUB involvement in mediation of application issues	•			Apr-01
	45, 47	Perception of EUB's neutrality		•		Dec-05
	46	EUB role as regulator for public safety		•		Mar-06
	48	EUB funding	•			Mar-03
	51	Ensure industry uses best practices in sour gas development		•		Mar-04
	69, 70, 74	Establish EUB public consultation staff resource team		•		Dec-05
	71	Take stringent action for poor public consultation	•			Sep-03
	72	Questions to assist the public during consultation	•			Sep-03
	73	Establish EUB information office		•		Dec-05
	75	Increase public awareness and understanding of sour gas issues; provide information about EUB		•		Dec-05
	76	Increase public awareness and understanding of sour gas issues; provide technical information		•		Dec-05
	77	EUB Field Centres provide information on key operator contacts, telephone numbers, and facility locations to the public		•		Mar-04
	79	Determine local benefits from sour gas development	•			Sep-03
	80	Effectively contact/establish ongoing relationships with all Albertans		•		Dec-05
	81	Develop public materials re role of EUB (CDs, videos)		•		Dec-05
	82	Improve communications in isolated communities among First Nations, EUB, and industry operators		•		Mar-04
	83	EUB consider forming an Aboriginal advisory committee	•			Jul-03
	86	Timely/meaningful public consultation for First Nations/Metis	•			Dec-02
		Totals	**26**	**58**	**3**	

*Only active recommendations are included in this semi-annual report.

PS&SG Project Status by Recommendation Category

Category	Rec #	Recommendation Subject	Completed	Continuing	Y3 Starts	End Date
Health Effects and Sour Gas Research	9, 59	Health effects information for H_2S and SO_2		•		Mar-04
	10, 11	Develop sour gas research strategies		•		Oct-04
	12	Establish coordinated, consistent medical response to H_2S exposure		•		Mar-05
	13	Establish high-level sour gas exposure registry to track high-level H_2S exposure		•		Mar-05
	67	Develop personal H_2S exposure monitors		•		
Sour Gas Development Planning and Approval	1, 2, 84	EUB work with other agencies to ensure that gaps in regulation and areas of overlap regarding the impact of sour gas on public safety are handled efficiently		•		Sep-04
	5	Taskforce investigation of improved surface/subsurface planning		•		Mar-05
	6	Plant proliferation	•			Jul-01
	7, 32, 33	Require applicants to consider use of existing sour gas infrastructure and to submit information on possible future development with well applications where sour gas is involved near people		•		Apr-04
	17, 18, 19	Standardize dispersion and risk assessment modelling		•		Mar-04
	20	Consolidate sour gas regulatory requirements into a concise summary document			•	Feb-05
	34	EUB/government/agency coordinated policy and application review		•		Mar-04
	35	Critical well prelicence review	•			Jul-01
	36	Licence application training/certification information requirement	•			Apr-02
	38, 41 – 44	EUB hearings and decisions		•		May-04
	39, 40	Rewrite *Guide 29* and make hearings user friendly	•			May-03
Sour Gas Operations	3	Soften visual impact and impression of sour facilities		•		Apr-04
	21	Review requirements for older sour gas pipelines: ensure adequate attention to corrosion failures		•		Dec-03
	22	Review adequacy of third-party damage prevention for sour pipelines		•		Dec-03
	23	Review requirements for approving reclassification of sweet gas facilities to sour service and for reactivating older sour wells		•		Apr-04
	24	Publicize requirements to convert existing pipelines to sour service		•		Jan-04
	25	Increase sour gas inspections	•			Dec-01
	26	Increase inspections of new and noncompliant operators	•			Mar-02
	27	Implement 100% inspection rate for complaint response/compliance	•			Mar-02
	28	Response to sour gas complaints	•			Apr-01
	30	Accelerated enforcement where noncompliance threatens health and safety		•		Nov-03
	49	Ensure that EUB sour gas related requirements continually reflect appropriate technology and practices			•	Dec-04
	50	Ensure that Alberta's sour gas workers have appropriate safety training		•		Sep-04
	52, 53	Setback and setback implication review of surface development		•		Apr-05
	68	Enhance EUB capability to monitor for complaint response/compliance	•			Mar-02
	78	Encourage development of mutual aid agreements where there are multiple operators in an area		•		Mar-04
	85	Complaint/incident response programs for Aboriginal communities	•			Mar-02

(continued)

PS&SG Project Status by Recommendation Category* (concluded)

Category	Rec #	Recommendation Subject	Completed	Continuing	Y3 Starts	End Date
Emergency Preparedness	15	Follow-up on major releases	•			Sep-03
	54, 60, 61	Interim policy on ERP review and reduced EPZs	•			Aug-01
	55, 56	Assess capability to implement ERP and increase ERP audits/tests		•		Sep-04
	57, 63, 64	ERP guide and requirements to coordinate responder roles		•		Dec-04
	58, 62	Review process for defining EPZ; require that ERPs show H_2S/SO_2		•		Mar-04
	65	Capability to monitor significant release events	•			Mar-03
	66	Clarify and coordinate monitoring roles and responsibilities	•			Jun-03
	67	Infrastructure/resources for Aboriginal community ERP	•			Nov-02
Information, Communication, and Consultation	3	EUB/IOGC/INAC/First Nations jurisdictional issues		•		Sep-04
	4	Create document and summary brochure outlining sour gas and public health and safety roles and responsibilities			•	Jan-05
	14	Increase awareness in First Nations communities about the agencies responsible for sour gas health services		•		Dec-04
	16	Review, organize, and enhance access to EUB data		•		Dec-05
	29	Field staff in industry-landowner discussion	•			Apr-01
	31	Increase availability of information on enforcement actions		•		Jun-04
	37	EUB involvement in mediation of application issues	•			Apr-01
	45, 47	Perception of EUB's neutrality		•		Dec-05
	46	EUB role as regulator for public safety		•		Mar-06
	48	EUB funding	•			Mar-03
	51	Ensure industry uses best practices in sour gas development		•		Mar-04
	69, 70, 74	Establish EUB public consultation staff resource team		•		Dec-05
	71	Take stringent action for poor public consultation	•			Sep-03
	72	Questions to assist the public during consultation	•			Sep-03
	73	Establish EUB information office		•		Dec-05
	75	Increase public awareness and understanding of sour gas issues; provide information about EUB		•		Dec-05
	76	Increase public awareness and understanding of sour gas issues; provide technical information		•		Dec-05
	77	EUB Field Centres provide information on key operator contacts, telephone numbers, and facility locations to the public		•		Mar-04
	79	Determine local benefits from sour gas development	•			Sep-03
	80	Effectively contact/establish ongoing relationships with all Albertans		•		Dec-05
	81	Develop public materials re role of EUB (CDs, videos)		•		Dec-05
	82	Improve communications in isolated communities among First Nations, EUB, and industry operators		•		Mar-04
	83	EUB consider forming an Aboriginal advisory committee	•			Jul-03
	86	Timely/meaningful public consultation for First Nations/Metis	•			Dec-02
		Totals	26	58	3	

*Only active recommendations are included in this semi-annual report.

Health Effects and Sour Gas Research

Recommendations 9 and 59: Health Effects Information for H_2S and SO_2

9 - The EUB work with Alberta Health and Wellness, regional health authorities, Alberta Environment, Alberta Human Resources, industry, and other stakeholders to ensure that comprehensive health effects information (qualitative and quantitative) is developed, as soon as practical due to its urgency. This information is needed to conduct the review of the approach to emergency response planning referred to in Recommendation 58. The review should cover both the constituents of sour gas mixtures and the combustion products of sour gas, including SO_2, reduced sulphur compounds, and complex hydrocarbons. (AHW has committed to lead the review for H_2S.)

59 - The EUB work with AHW, RHAs, and other stakeholders to develop clear requirements and evacuation criteria to address the hazard of SO_2 as a result of ignition.

Intent

Ensure that comprehensive health effects information is developed. Review the current extent of knowledge regarding the health effects associated with exposure to hydrogen sulphide (H_2S) and sulphur dioxide (SO_2).

Lead Agency/Branch

AHW

Stakeholders

Alberta Environment (AENV), regional health authorities (RHAs), Alberta Human Resources and Employment (HRE), Canadian Association of Petroleum Producers (CAPP), Small Explorers and Producers Association of Canada (SEPAC), Alberta universities

Action Plan Update

Start date: October 2001

End date: March 2004

AHW established a multistakeholder expert advisory committee to evaluate the current health effects literature on H_2S and SO_2. A consultant was retained to review the current literature on H_2S and SO_2 health effects and report to the committee. The review has been completed for H_2S. The final report was provided to the EUB in January 2003 and is available on the EUB Web site at http://www.health.gov.ab.ca/public/document/H2S_report.pdf.

AHW has also provided the EUB with a review of the completed H_2S report, along with revised H_2S emergency evacuation guidelines that include concentration and time elements. The EUB will consider these guidelines in addressing the recommendations related to emergency response planning (Recommendations 17, 18, and 19; 52 and 53; 55 and 56; 57, 63, and 64; and 58 and 62).

Phase 2 of the literature review now under way is focused on SO_2. The available literature on SO_2 is extensive and required more resources and time than first anticipated. However, AHW, in partnership with AENV, undertook the review of the SO_2 literature with an original targeted deadline of spring 2003 for completion of the review and preparation of a report. This has now been revised to spring 2004, with a final report anticipated before March 31, 2004. The delay is a function of the volume of literature to be reviewed and the resources required to draft a summary report.

In addition to the work undertaken by AHW, AENV has published the recent report *Health Effects of Hydrogen Sulphide: Knowledge Gaps,* by Dr. Sheldon Roth and Verona Goodwin. The EUB is reviewing the report and will comment in the next annual report.

Deliverable

The key deliverable for this recommendation is the updated H_2S and SO_2 health effects table from AHW.

Recommendations 10 and 11: Develop Sour Gas Research Strategies

10 - The EUB, Alberta Health and Wellness, Alberta Environment, Alberta Agriculture, Food and Rural Development, Alberta Research Council, RHAs, Industry, and other interested parties, including Alberta universities, jointly establish an independent Scientific Review and Advisory Committee to provide recommendations on required research programs related to sour gas and health. This should be an ongoing activity to ensure that the research activity supports best practices by all parties. Among the tasks of this committee would be to ensure recognition and thorough assessment of completed and ongoing studies and the dissemination of the information.

11 - The EUB work with the Alberta Government to ensure financial support is available to address gaps in research respecting the health effects of sour gas. Such research should complement the multi-government Western Canada Study on Animal and Human Health Effects Associated with Exposure to Flare Emissions. This research study should review the current gaps in human health research to ensure the proposed study plan addresses the relevant issues.

Intent

Ensure that research related to sour gas and human health takes place.

Lead Agency/Branch

AHW

Stakeholders

AENV, Alberta Agriculture, Food, and Rural Development (AAFRD), Alberta Research Council (ARC), RHAs, Innovation and Science, Clean Air Strategic Alliance (CASA), CAPP, SEPAC, Alberta universities

Action Plan Update

Start date: October 2002

End date: October 2004

The work to address these recommendations was scheduled to start during the first year of PS&SG (2001) but was deferred until after the review of the health effects data (Recommendations 9 and 59) was completed. AHW is now pursuing these recommendations with other partners in research. A focused workshop was held in March 2003 with invited scientists from Canada and the United States. Its scope was to identify, confirm, and discuss health and air quality research needs in Alberta. The panel of scientists was asked to identify issues, needs, and concerns that in their experience would drive air quality and human health research in Alberta. The list of needs and issues was then evaluated to determine the panel's perspective on how each item may influence air quality and health research needs in the future. A final report of the workshop proceedings and recommendations is now being considered by AHW.

Deliverables

The key deliverables for Recommendations 10 and 11 will be established once the review of the health effects data is complete.

Recommendation 12: Establish Coordinated, Consistent Medical Response to H_2S Exposure

Alberta Health and Wellness work with regional health authorities and physicians, through the Alberta Medical Association, to ensure a consistent, appropriate, and coordinated response to individuals exposed to major H_2S releases. This should be a 24-hour, seven-day-a-week response, possibly utilizing the Poison and Drug Information Service.

Intent

Provide a 24-hour, 7-day-per-week medical information response for individuals exposed to a high dose of H_2S. Medical professionals would use this service in the treatment of H_2S exposure.

Lead Agency/Branch

AHW

Stakeholders

RHAs, Alberta Medical Association, Poison Control Centre

Action Plan Update

Start date: August 2002

End date: March 2005

The work to address this recommendation was deferred until after the review of the health effects data (Recommendations 9 and 59) was completed. AHW has now engaged representatives of Alberta Human Resources and Employment, the Alberta Medical Association, and the Provincial Health Office to discuss the appropriate response to this recommendation. Several options are currently being considered. Next steps in the process will be discussed by stakeholders at their meeting scheduled in October 2003.

Deliverable

The key deliverable for Recommendation 12 is the creation of a coordinated and consistent procedure for medically responding to H_2S exposure.

Recommendation 13: Establish a Sour Gas Exposure Registry to Track Individuals Who Have Experienced High-Level H_2S Exposure

The EUB work with Alberta Health and Wellness and Alberta Human Resources to establish a high-level exposure registry to track individuals who have been knocked down or had other substantial exposures to sour gas. This would enable tracking of significant human exposures to H_2S and help ensure the consistent follow-up of exposed individuals.

Intent

Establish a high-level exposure registry to track and provide follow-up for individuals who have experienced high-level exposure to H_2S. Initially, this would include workers and may be expanded to include affected members of the public.

Lead Agency/Branch

AHW

Stakeholders

Alberta Human Resources and Employment, physicians, industrial workplace safety departments

Proposed Action Plan

Start date: June 2003

End date: March 2005

Work began on Recommendation 13 in spring 2003. One option under consideration is a pilot project to evaluate the process for identifying and tracking affected individuals and possibly developing a registry. If successful, professionals would need to be made aware of the registry. If a pilot proposal is considered feasible, a plan would have to be drafted and approved. Resourcing the pilot would then become the next hurdle to overcome. It is reasonable to assume that should a plan be drafted and the necessary resources be allocated, implementation of any pilot proposal would not take place before spring 2004. It is likely that subsequent data collection and a final report on the findings are not likely before spring 2005.

Identified action items are as follows:

- Alberta Human Resources and Employment, along with AHW, will investigate the feasibility of establishing a registry. The next meeting is scheduled for October 17, 2003.
- The investigation will be expanded as appropriate once feasibility is confirmed.

Recommendation 67: Develop Personal H_2S Exposure Monitors

The EUB, with the assistance of industry and researchers, promote and support the development of exposure monitors that can be used to measure personal exposure of the public to sour gas-related substances in a practical manner. Guidelines would also be required as to the circumstances in which they should be used.

Intent

In order to address health concerns and issues and to expand knowledge of health effects, develop a reliable personal monitor capable of measuring low-level exposures to H_2S. Develop plans and protocols for how and when these monitors would be used and how the data collected would be reported and used.

Lead Agency/Branch	*Stakeholders*
AHW	AENV, AHR, CAPP, SEPAC

Action Plan Update

Start date: April 2001

End date: Due to the nature of this work, it is not possible to identify an end date at this time.

The project team first undertook an assessment of existing monitors and equipment and was able to identify gaps in current technology. In order to fulfill the intent of Recommendation 67, a consultant was engaged to develop a portable personal H_2S exposure monitor. A prototype unit has been developed and tested in the laboratory. An advanced prototype was field tested in November/December 2002.

AHW has focused on the development of the H_2S equipment, as H_2S is the contaminant of most concern. Concurrent development of monitoring equipment for more than one contaminant and/or chemical mixtures is not feasible because of the required financial and human resources. However, the prototype personal H_2S monitor is also capable of measuring aggregate levels of reduced sulphur compounds.

The team has determined that the development of contaminant-specific personal exposure devices is resource and labour intensive. Computer program development and technical issues need to be addressed in a timely manner. These issues will continue to be resource intensive as the development proceeds. Funding issues have become a real concern respecting the ongoing viability of the project. Alternative solutions are now being investigated for consideration by AHW in collaboration with other stakeholders. Timing of continued development is dependent on identification of new funding sources.

Deliverable

The key deliverable for this recommendation is the development and use of portable personal H_2S monitors in the field.

Sour Gas Development Planning and Approval

COMPLETED

Recommendations 39 and 40: Rewrite *Guide 29: Hearing Process*; Make Hearings User Friendly

39 - The EUB increase efforts to make hearings less formal and more user friendly. One example of how this might be done is to hold more prehearing conferences, where there is a potential to better scope the hearing, explain the hearing process to public participants, and resolve differences of views before the hearing regarding eligibility for intervener costs.

40 - The EUB rewrite its brochure, Guide 29, *on the hearing process to make it more understandable and then make it more widely available to the public.*

Completion Statement

End date: May 2003

Guide 29: Energy and Utility Development Applications and the Hearing Process and the companion brochure *Energy and Utility Development Applications, the Hearing Process, and Costs Awards* were published in January 2003 and made available to the public and other stakeholders. Their primary purpose is to further assist members of the public who wish to participate in the hearing process if they feel a decision of the EUB may directly and adversely affect them. However, the guides do not deal with the process used for utility rate applications.

Guide 29 was rolled out to EUB Field Centres to ensure awareness of field staff who interact directly with the target audience. The guide will continue to be rolled out to synergy groups and through open houses and public meetings in Alberta. A video to accompany *Guide 29* has been produced and is now available from EUB Head Office and Field Centres.

Recommendations 1, 2, and 84: Coordinate Involved Jurisdictions Regarding the Impact of Sour Gas on Public Safety and Ensure That Overlaps Are Handled Efficiently

1 - In its role as the principal regulator of the Alberta oil and gas industry, the EUB work with provincial and federal government departments, municipalities, RHAs, tribal councils, IOGC, IRC, INAC, and any other agency that has jurisdiction respecting the impacts of sour gas on public health and safety in Alberta to

- *clarify roles, responsibilities, and relationships respecting sour gas and public health and safety,*
- *identify and eliminate any gaps in the system, and*
- *identify overlaps in jurisdiction and either eliminate the overlap or develop formal working agreements to avoid unnecessary duplication and confusion as to responsibilities.*

In this regard, the EUB should consider the designation of an individual or group within the EUB to coordinate jurisdictional matters.

2 - The working relationships established between the EUB and other involved jurisdictions (particularly the RHAs, municipalities, Municipal Affairs Disaster Services, AENV, and AHW) need to be strengthened to include meaningful involvement of the jurisdictions in establishing effective and efficient standards, criteria, policies, and processes for dealing with the public health and safety aspects of sour gas facility applications.

84 - The EUB work with federal and other government departments to ensure that the relationship among federal and provincial government departments, First Nations and Metis communities, and adjacent municipalities is clear, that gaps in regulation are eliminated, and that areas of overlap are handled efficiently through the necessary agreements. This matter is also dealt with in Recommendations 1 and 3.

Intent

The EUB coordinate its work with the work of other agencies that have jurisdiction respecting the impacts of sour gas on public health and safety in Alberta to ensure that gaps in regulation are identified and resolved and areas of overlap are handled efficiently through mutual agreements.

Lead Agency/Branch

EUB Law

Stakeholders

EUB, relevant provincial and federal government departments, municipalities, RHAs, tribal councils, Indian Oil and Gas Canada (IOGC), Indian Resource Council of Canada (IRC), Indian and Northern Affairs Canada (INAC)

Proposed Action Plan

Start date: May 2003

End date: September 2004

Terms of reference discussing how the objectives of these recommendations will be met have been drafted. A series of working papers has also been drafted to clarify the roles, responsibilities, and relationships of some 20 organizations respecting sour gas and public health and safety.

An extensive amount of research is under way, as the EUB Law Branch continues to review various initiatives affecting the working relationships between the EUB and other organizations. This research includes items such as memorandums of understanding and other types of agreements. Once work is completed, the Law Branch plans to meet with identified stakeholders to get a better understanding of each organization's roles, responsibilities, and perspectives. These meetings, along with other completed research, will assist in the identification of any gaps or overlaps between the EUB and other organizations. The Law Branch will then discuss its initial findings with the relevant stakeholders as to how any identified gaps and overlaps may be addressed.

With so many different stakeholders involved in these recommendations, it is vital that careful progress be made with a view to thoroughness and inclusion.

Deliverable

An initial deliverable is to identify the many stakeholders that may become involved in this recommendation and to research, list, and understand multiple roles, responsibilities, and perspectives. Following that, meetings will be held to identify gaps.

Recommendation 5: Investigation of Improved Surface/Subsurface Planning

The immediate formation of a task force of senior decision makers that would investigate the possibility of improving coordination between subsurface and surface planning and development. The task force should be empowered to look at all relevant aspects of planning and development, including the mineral leasing system, and should include appropriate representation from Alberta Resource Development, Alberta Municipal Affairs, AHW, AENV, the EUB, Aboriginal groups, urban and rural municipalities, RHAs in sour gas areas and their associations, surface land developers, the public, and the oil and gas industry. The Task Force should investigate and consider, among other matters, the following:

- The development by the oil and gas industry, government, and urban and rural planning authorities of a complementary planning and development process. The Task Force might consider EUB *ID 96-01* (regarding Hay-Zama Lake Complex – Special Requirements) as a useful precedent to assist in coordinating surface and subsurface development near populated areas, such as urban and seasonal recreational centres, as well as near First Nations and other Aboriginal lands.
- The development of policies to ensure that sour gas reserves are delineated and recovered as soon as reasonably possible in populated areas (such as those identified in existing Inter-municipal Development Plans [IDP], designated fringe areas, or intensive transportation corridors), while still providing the industry with a reasonable opportunity to develop its mineral leases.
- Where there are current land-use conflicts related to sour gas and public health and safety, the development of Land Use and Resources Development (LRD) Agreements by the surface and subsurface owners, relevant municipal planning authorities, and the EUB. These agreements could provide a workable solution for all parties involved in terms of development and timing. EUB *Decision 2000-20, Dynegy Canada Inc., Application for Pipeline Licence Amendments*, is an example of how these types of agreements could be used. This might be accomplished through effective public consultation processes.
- The promotion of information exchange between industry, government, and Aboriginal people, regarding heritage (traditional lands and sacred sites), land-use planning, development, building, and emergency planning issues.
- Possible changes to the mineral leasing system. These might include matters such as leasing larger blocks of common ownership for sour gas near population centres and warnings when smaller blocks are posted that common operations are preferred; qualification criteria to ensure that operators have the necessary risk management standards and resources to handle sour gas; and notification to potential bidders of possible restrictions on resource development (such as lease time limit) in areas within or adjacent to urban centres or where land-use conflicts are relatively near-term.
- Possible restrictions on municipal development until the sour gas resources are recovered or building restrictions through land-use bylaws in areas where there is high potential for sour gas development.
- Possible modification to the existing membership of the Crown Mineral Disposition Review Committee to address the possible impacts of sour gas development on public health and safety.

Intent

Investigate possible ways to reduce the immediate interface between large populations and sour gas developments, both geographically and in time, resulting in reduced conflict between sour gas development infrastructure and land surface development through improved, longer-range, and cooperative planning of both activities.

Lead Agency/Branch

PSIT

Stakeholders

Alberta Department of Energy (DOE), CAPP, SEPAC, other provincial government agencies, public, land development industry, land-use planning authorities

Action Plan Update

Start date: June 2001

End date: March 2005

In October 2002, a government senior steering committee was formed to provide strategic direction to a government working-level committee addressing this complex recommendation. Although some initial work has been undertaken, the Advisory Committee expressed concern that there had been no stakeholder involvement beyond the government committees. To address this concern, the EUB Chairman and Co-chair of the government senior steering committee wrote to the Advisory Committee in August 2003 with a strategy for broad stakeholder involvement. The letter and the government committee terms of reference are available on the EUB Web site, as is a consultant's report of an investigation into the history of sour gas developments and planning initiatives undertaken in the Calgary area over the last 23 years. The report captures the extensive history of efforts taken by the ERCB/EUB, resource companies, and municipalities in and around Calgary to minimize conflicts between subsurface and surface development. It is anticipated that this report will help in determining the actions that could be evaluated and undertaken to improve the coordination between surface and subsurface developments in the Calgary area and other locations to minimize future conflicts.

The team has also acted upon its strategy for broad stakeholder involvement. Recently, selected stakeholders with a variety of different perspectives, including those of the energy industry, municipalities, landowners, developers, and residents have been invited to participate in the ongoing project. A series of first meetings with stakeholders is planned for October 2003. The information gathered, along with the historical review already undertaken of actions tried in the Calgary area, will provide the basis for evaluating and designing future actions during the proposed Calgary case study and in other pilot areas. Further stakeholder input will be sought following the information-gathering phase to develop specific project plans and terms of reference for the pilot areas.

As part of developing the terms of reference for the pilots, performance measures for each of the proposed actions will be defined so that successful outcomes can be identified and the actions implemented in other areas of the province.

There are currently other initiatives under way that could assist in improving the coordination between surface and subsurface developments. The EUB is working with stakeholders on requirements or best practices for operators to provide options for using existing sour gas infrastructure to address Recommendation 7 and for project and area plans for sour gas developments to address Recommendations 32 and 33. Representatives from the EUB and other government departments, municipal organizations, and industry are working to improve coordination and cooperation between the oil and gas industry at the local or regional level to address Recommendation 34. AENV is working with other government departments, industry, communities, and individual Albertans to promote integrated resource management by developing regional strategies as the bridge between provincial policy and local or project planning. All of these initiatives involve EUB or government representatives who are also involved with Recommendation 5 to ensure that work is coordinated for the best possible outcome.

Addressing Recommendation 5 remains a high priority for the EUB and the government senior steering committee. The recommendation calls for investigation into "the possibility of improving coordination between subsurface and surface planning and development." The working level committee will be seeking advice from the Advisory Committee on when and how to complete this recommendation, given that this investigation has begun and that some of the more complex actions may take considerable time to complete.

Deliverable

The deliverable for this project is a series of recommendations to the government's senior steering committee for consideration and subsequent implementation through its members' respective departments.

Performance Measures

Performance measures will be developed along with the actions that will be tried in the Calgary case study and pilots.

The outcome that needs to be measured is an improved coordinated approach to surface and subsurface planning of sour gas near people.

Recommendations 7, 32, and 33: Require Applicants to Consider Use of Existing Sour Gas Infrastructure and to Submit Information on Possible Future Development with Well Applications Where Sour Gas Is Involved Near People

7 - Revisions to EUB guides to require operators to include in their applications for critical sour wells, pipelines, and facilities a review and discussion of options to utilize existing sour gas infrastructure in the area in order to minimize the extent to which the public is impacted by additional sour gas development. This would include both the applicant's facilities as well as other operators' facilities in an effort to reduce proliferation of well sites and sour gas pipeline infrastructure. Options may include consideration of directional drilling, target flexibility, and the establishment of pipeline corridors.

32 - The EUB support area planning among operators and require well applications to include at least general information regarding existing and possible future area plans where sour gas in involved near people.

33 - For sour gas near people, the EUB require project plans as part of well applications where a well is part of a larger project of the applicant and encourage applications for more than one well and facility at one time where feasible.

Intent

Minimize the impacts of sour gas development by encouraging or requiring operators to conduct a proliferation assessment of existing sour gas infrastructure before applying for new facilities, to share information regarding existing and possible future area plans, and to submit more than one well or facility application at a time where sour gas is involved near people.

Lead Agency/Branch

EUB Applications

Stakeholders

CAPP, SEPAC, public, municipalities, other government departments

Action Plan Update

Start date: July 2001

End date: April 2004

In spring 2002, EUB staff drafted a proposal that would address both planning and proliferation issues, thereby combining Recommendations 7, 32, and 33 under one project. The intent of the proposal is to require industry to disclose information about future area development to people potentially affected by those sour gas developments and to other sour gas operators in the area. Industry would also be required to conduct a proliferation assessment for all new sour gas infrastructure.

The proposal put forth possible new EUB requirements and expectations with regard to planning and proliferation of sour gas projects near people. Under the proposal, a project is defined as a system of facilities, pipelines, and wells that is an integrated undertaking to produce and process sour gas. Cases of sour gas near people are generally defined as situations where there are people residing within or in close proximity to the EUB-calculated emergency planning zone (EPZ).

Essentially, the proposal suggested that if a sour gas well were part of a larger project that included, for example, additional wells, pipelines, and facilities, the applicant would file a "bundled" project submission and a pool development plan with the EUB. The project submission would include an assessment of options to utilize existing sour gas infrastructure. The proposal also suggested that in certain cases the EUB would use its discretion to require a company to submit an area development plan.

The draft proposal was provided for consultation to members of the Advisory Committee, the Sundre Petroleum Operators Group (SPOG), the Quirk Creek Gas Plant Community Advisory Committee, the Alberta Association of Municipal Districts and Counties (AAMD&C), CAPP, Canadian Association of Petroleum Landmen (CAPL), and SEPAC. The team also received comments from individuals who reviewed the proposal and appreciates the interest shown by various stakeholders.

Feedback indicated a range of views on planning and proliferation. While there was general support for greater disclosure of planning information, there were several views about the amount of information that should be disclosed to residents and landowners. There was also support for a combined regulation/best practice approach. Another issue currently being discussed, which remains to be resolved, is whether the proposal should be limited to applications where sour gas is being developed adjacent to communities or apply to all sour gas developments (i.e., even in remote areas where there are no people residing in the EPZ).

During this reporting period, EUB staff completed their review of the feedback received from the stakeholder consultation process. After careful consideration of the views expressed, the EUB staff team is proposing a different approach. The new proposal would entail industry applying the same concepts as described in the original proposal—project "bundled" applications, preparation of pool development plans and proliferation assessments, and disclosure of this information to people living near sour gas developments—to address concerns about planning and proliferation.

The new proposal departs from the original in that implementation would depend on enhanced application of existing regulatory requirements combined with introduction of a recommended practices guide to planning and proliferation. Over the past three to four months, a committee of industry representatives and EUB staff has worked diligently to develop a recommended practices guide. The team has sought the views of the Advisory Committee and EUB executive managers on the new approach and has received tentative approval to pursue this direction, pending further input and support from all stakeholders.

Another element of the new approach is the suggestion to establish a multistakeholder steering committee to monitor, evaluate, and report on whether the combination of existing requirements and the recommended practices guide should include an approach on how to address public concerns about planning and proliferation of sour gas facilities.

A second round of stakeholder consultation is scheduled for September and October to determine the degree of support for the new approach. Subsequently, the team will report its findings to the Advisory Committee and to the EUB Executive Committee and Board.

This suite of recommendations is related to Recommendation 5, to investigate improved surface and subsurface coordination. The EUB staff team continues to work closely with the project team responsible for Recommendation 5.

Deliverable

The key deliverable is a recommendation to the EUB on a new policy directive that includes changes to energy development application requirements that would be incorporated in *Guide 56: Energy Development Applications and Schedules*.

Performance Measures

Will be developed this winter by multistakeholder steering committee.

Recommendations 17, 18, and 19: Standardize Dispersion Modelling and Risk Assessment

17 - The EUB, in cooperation with stakeholders, develop a framework and methodology for standardizing dispersion modelling and probabilistic risk assessment that will provide clarity to the industry and the public. This would include review of existing models and defining a set of standard models and methods that will be accepted for evaluating health and safety exposure hazards and probabilistic risk from sour gas releases. AENV has developed a set of standard dispersion models for routine industrial releases that should be reviewed by the EUB.

The EUB should define the range of conditions for which each model is suited. A list of standard release, dispersion, and probabilistic risk models and a set of standardized scenarios of release rates, atmospheric conditions, and sour gas exposure effects should be made readily available by the EUB so that everyone has access to this information. These same models and methods should be suitable for assessing exposure close to the source, and evaluating policies for setbacks, emergency planning zones, and mitigation strategies, such as ignition and sheltering indoors. Where a nonstandard approach to hazard or probabilistic risk modelling is brought forward by the industry or the public, the EUB should be responsible for bringing all parties together early in the process to discuss and resolve differences.

18 - The EUB require that users of sour gas hazard and probabilistic risk assessment techniques clearly state their methods and assumptions. The sour gas hazard or probabilistic risk assessments should state the methods and assumptions in sufficient detail that a third-party could duplicate the numerical results.

19 - The EUB be responsible for reviewing and updating its standard models and methods regularly. As new techniques become available and are demonstrated to be superior, they should be adopted by the EUB. This responsibility would require the EUB to maintain the in-house expertise required to evaluate and adapt existing atmospheric dispersion and toxic risk models used by other agencies such as AENV and other national and international agencies and researchers.

Intent

Establish and maintain standardized criteria for use in dispersion modelling and risk analysis.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, AENV, independent experts

Action Plan Update

Start date: April 2003

End date: March 2004

Recommendations 17, 18, and 19 relate to the development and maintenance of a standardized hazard and risk analysis protocol. The objective in satisfying these recommendations is to provide clarity to the public and industry by providing a benchmark for comparison in sour gas developments.

There will be two new protocols resulting from this work. One will consider the consequences of an uncontrolled release of sour gas and will provide new EUB requirements to calculate EPZs. The second protocol will provide the methodology for estimating risk from a sour well, pipeline, or facility.

Protocol for Calculating an Emergency Planning Zone for Sour Wells, Pipelines, and Facilities

The *Protocol for Calculating an Emergency Planning Zone for Sour Wells, Pipelines, and Facilities* is based on realistic worst-case scenarios to determine the extent of the hazard zone posed by H_2S and/or SO_2 (ignited cases) during an uncontrolled release from a well blowout or pipeline rupture. It uses state-of-the-art dispersion modelling to predict the concentrations at an end point that will be based on toxic load (see Recommendation 9 for further details). The protocol will comprise four volumes:

- an overview of the requirements,
- a technical description and formulations,
- a user guide and workbook, and
- a software suite.

Use of this protocol will eventually become mandatory in calculating EPZs as part of a sour well or pipeline application or intervention and for operating sour wells and pipelines and will supersede the nomographs currently used to calculate an EPZ. The EUB will provide an automated tool that will be relatively easy to use. Under the terms of the protocol, a user may choose to undertake an alternative analysis subject to conditions that will ensure a comprehensive and scientifically valid submission. The objective is for only the EUB software tools to be applied in most cases, yet still allow the flexibility to address specific needs or apply new science where necessary.

The protocol is in an advanced stage of development. It has been tested by the EUB and is undergoing peer review by modelling experts to ensure its accuracy and robustness. The next phase of the project will be to present the protocol to senior management within the EUB, with anticipation of finalizing the work by March 2004. There will be a need to revise the protocol to include an SO_2 hazard zone once work under Recommendation 9 is complete.

Protocol for Estimating Risk from Sour Wells, Pipelines, and Facilities

The risk protocol is based on much of the work already undertaken for the *Protocol for Calculating an Emergency Planning Zone for Sour Wells, Pipelines, and Facilities*. An evaluation of the EUB well and pipeline failure data has already been undertaken to support the risk protocol and is currently under revision to include amendments resulting from stakeholder review. The risk protocol will not be a mandatory requirement in a licence application but its use may be required if there are public concerns (such as for land-planning purposes), so that when an alternative risk analysis is performed a benchmark for comparison is available. The outcome of this work will also feed into the setback review under Recommendation 52. The risk protocol will be finalized by the end of March 2004, following approval by EUB senior management.

Finalizing these two protocols will complete Recommendations 17 and 18. The new requirements for calculating EPZs will be implemented under Recommendation 58.

To satisfy the intent of Recommendation 19, a Protocol Advisory Group within the EUB will meet periodically to review and amend the protocols to ensure that they remain current.

Deliverables

- *Protocol for Calculating an Emergency Planning Zone for Sour Wells, Pipelines, and Facilities*
- *Protocol for Estimating Risk from Sour Wells, Pipelines, and Facilities.*

Performance Measures

No simple metric has been identified. Success of the project can only be measured long term. It is expected that much of the debate on the "correct" models and input parameters at public hearings will be reduced after the protocols are implemented.

Several outcomes may be used to measure the success of this project:

- Less confusion during public consultation and at hearings, since comparisons can be made to the EUB base cases.
- Improved public confidence in EPZ distances that are based on defensible science.
- Improved use of emergency responder resources as a result of more accurate EPZ calculations (compared to the existing simplistic calculation methods).

Recommendation 34: EUB/Government Agency Coordinated Policy and Application Review

The EUB increase and improve coordination between itself and AENV, other involved government departments, and municipality and regional health officials. It should develop a system that provides for their involvement in relevant EUB policy making and, where applicable, for their early, efficient, and effective involvement in the review of applications dealing with sour gas and public health and safety. This matter is also dealt with in Recommendations 1 and 2.

Intent

The EUB should develop a system that allows for the involvement of relevant government agencies in the development of EUB policies, processes, and practices and, where appropriate, in the sour gas application processes.

Lead Agency/Branch

EUB Applications

Stakeholders

CAPP, SEPAC (as required), industry, RHAs, AHW, First Nations Inuit Health Branch of Health Canada, municipalities, and other government departments

Action Plan Update

Start date: July 2001

End date: March 2004

In 2002 a stakeholder team composed of EUB staff and representatives from AHW, RHAs, and Health Canada's Aboriginal and Inuit Health Branch developed a draft protocol for increased coordination among all parties. The protocol will result in

- a one-window process, facilitated by AHW, for seeking input from health agencies in the development of EUB policies, processes, requirements, and procedures on matters related to sour gas and public health and safety;
- the early and effective involvement of RHAs in the preparation of emergency response plans (ERPs) for select sour gas applications; and
- at the regional level, initiation of a dialogue process between RHAs and EUB Field Centres to provide a forum for building trust and sharing information on matters of mutual interest.

The stakeholder team also drafted a public health complaint process and has recommended that it be piloted in one or two regions of the province. If adopted, the process would clarify roles and responsibilities between a local health authority and an EUB Field Centre when responding to nonemergency health complaints related to the oil and gas industry.

The team is waiting for executive signoff and confirmation from the Council of Medical Officers of Health (COMOSH) on the principles and concepts contained in the draft protocol. Recent public health issues (SARS, West Nile virus) have caused COMOSH to defer this discussion until fall 2003. Health Canada and AHW have both agreed to sign off, pending full group acceptance. The EUB is awaiting signoff by others before finalizing the protocol.

In the meantime, the team will initiate work to launch the dialogue process envisioned under the protocol. However, full implementation cannot proceed until the RHAs confirm their support of the process. The changes in RHA boundaries and Medical Officers of Health (MOHs) have also delayed start-up.

A pilot project to test the public health complaint process has recently been launched with the involvement of the EUB Midnapore Field Centre and the Calgary Health Region. Staff from both agencies will test the complaint process using situations in the Midnapore region and recommend whether the process has merit and/or needs improvement. The proposed model may need to be further pilot tested before it can be finalized.

In June 2003, the project team initiated phase 2, addressing the EUB's relationship with local municipal authorities. With the cooperation of the AAMD&C, Alberta Urban Municipalities Association (AUMA), and Alberta Municipal Affairs, eleven representatives have been appointed to work with the EUB on this issue. CAPP has also been asked to comment on part of the initiatives.

The team members worked diligently throughout the summer and by the end of August had drafted a framework and protocol to improve coordination and cooperation between the EUB and municipalities on matters of policy. The local authorities have been asked to comment on their views of the current application and consultation practices.

The team is also discussing solutions that might be used to improve communication and collaboration among municipalities, the EUB, and the oil and gas industry at the local and regional level. This component may also assist in addressing communication issues identified under Recommendation 5. Therefore, the team will be working closely with the Recommendation 5 project team.

A series of meetings to finalize the framework and protocol is scheduled for September and October. In late 2003, the team will take its recommendations to the executives of its members' respective organizations for feedback and approval. Depending on the degree of support for the team's recommendations, work on this part of Recommendation 34 may be brought to a close in spring 2004.

Deliverables

The key deliverables for Recommendation 34 are the implementation of mechanisms and processes to facilitate an improvement in the involvement of other government agencies in relevant EUB policies, processes, and procedures.

Performance Measures

If there is support for the draft protocols, the team will develop performance measures as part of the plan for implementing them.

Recommendations 38, 41, 42, 43, and 44: EUB Hearings and Decisions

38 - The EUB ensure adequate preparation time for hearings regarding sour gas facilities where there are public health and safety concerns.

41 - The EUB increase recognition of public input in decision reports and provide more descriptive material regarding the criteria used in evaluating the public interest and the manner in which surface, subsurface, individual, and other interests (including health impacts, safety, nuisance effects, and the environment) are balanced in evaluating the public interest. The EUB should consider providing improved access to decision reports, for example, through a key-word index.

42 - The EUB recognize the past performance of the applicant as an operator of sour gas facilities elsewhere in the province when making decisions respecting proposed sour gas facilities.

43 - The EUB ensure that appropriate expertise in special subject areas, such as health and probabilistic risk assessment, is available in the form of staff, consultants, EUB Board Members, and Acting Board Members to participate in decisions and to ensure that these subject areas are appropriately dealt with in decision reports. Given the increasing importance of health issues relative to sour gas applications, consideration should be given to appointing a medical doctor with toxicological and health impact experience as a full or part-time EUB Board Member.

44 - The EUB record public health and safety-related commitments and undertakings given by applicants and better ensure that these are fulfilled.

Intent

The five recommendations focus on improving the EUB hearing process so that the public can effectively participate and is aware of the manner in which EUB panels evaluate and balance matters of public concern when making decisions on sour gas developments. The EUB hearing process should

- ensure that adequate expertise is available to advise EUB panels on issues related to sour gas development,
- provide all parties with an adequate opportunity to become informed and prepare for the hearing process,
- be transparent in how evidence provided by hearing participants is understood and considered in reaching conclusions,
- ensure that commitments made by applicants and conditions imposed by the Board are subsequently fulfilled, and
- consider applicant past performance when making decisions about proposed sour gas facilities.

Lead Agency/Branch

EUB Applications

Stakeholders

EUB, participants in the hearing process (public, industry, lawyers, experts)

Action Plan Update

Start date: April 2002

End date: May 2004

Recommendations 38, 41, 42, 43, and 44 relate to ongoing improvements to the EUB's applications and hearing processes, which began under Recommendations 37, 39, and 40, which have been completed. The EUB has agreed to place greater emphasis on internal systems to ensure that the hearing process reflects the intent of the Advisory Committee's recommendations. A more detailed action plan to address the

recommendations is currently being developed, which will result in discussion papers and proposals to the Advisory Committee by April 2004.

The following actions continue to be taken to address each recommendation.

Recommendation 38

EUB staff continue to consult with applicants and interveners to schedule or reschedule hearings with a view to ensuring that parties have sufficient preparation time.

The EUB continues to hold information sessions with the public well in advance of hearings to ensure that potential interveners are informed about the hearing process and the types of resources and support that can be provided by the EUB and other parties.

EUB staff use prehearing meetings to outline issues and explain the benefits of an interrogatory process to all parties.

The EUB continues to consult with intervener groups at EUB information sessions to discuss process issues, such as timing, experts, and submissions. The sessions also allow staff to gauge satisfaction on a one-on-one basis.

An interrogatory process provides structure to the parties on the exchange of information on technical and complex issues.

Recommendation 41

EUB decision reports include an evaluation of pertinent evidence and the reasons for the Board's decisions.

An EUB committee comprising senior staff across many areas of the organization has been struck to review procedures for writing decision reports, with a view to identifying areas where improvements can be made. One of the objectives is to re-evaluate the design and processing of decision reports to ensure that the documents are consistent and user friendly. The committee is working to ensure that all decision reports clearly demonstrate how evidence has been evaluated and considered by the Board.

Recommendation 42

The EUB is reviewing procedures for how it deals with past performance of applicants when considering applications. Staff are also examining the feasibility of linking audit results with the application process. When an application is scheduled for a public hearing, the Applications Group audit team manually researches and prepares a corporate profile, which includes the applicant's corporate and audit history.

Recommendation 43

EUB staff actively identify issues to determine what type of expertise is required and available for a hearing.

Staff continue to work with Board panels to increase appreciation of the range of expertise needed at EUB hearings (e.g., a veterinary doctor is available to sit as an Acting Board Member). A protocol will be developed to ensure that the Board has access to technical experts when needed in areas such as health, environmental impacts, and facilities engineering. At present, EUB staff are evaluating the need for access to more expert services, whether on a full-time or contract basis.

Recommendation 44

EUB hearing coordinators now develop and implement action plans to track and monitor conditions attached to decision reports. An external audit of action plans was completed in the spring and summer of 2003. Results from the audit will be used to improve existing procedures and revise as necessary.

A full-time employee was hired in July 2003 to implement a work plan that will determine and analyze customer satisfaction with the overall hearing process. This work plan will be specifically designed for EUB public hearing participants and will look to measure such items as

- evaluating the adequacy of timelines set for the process,
- evaluating participants' understanding of the process, and
- attempting to measure participants' confidence that they were treated fairly and that their concerns were heard by the hearing panel.

The work plan includes designing a questionnaire, interviewing hearing participants, and compiling results, with the goal of using these results to make continuous improvements.

Performance Measures

To be developed in conjunction with internal and external stakeholders.

Consider analysis of statistics that result from questionnaire, e.g., percentage of participants satisfied with the timeliness of the hearing process.

Sour Gas Operations

Recommendation 8: Soften the Visual Impact and Impressions Effects of Sour Facilities

Revisions to EUB guides to encourage operators to consider methods for reducing the visual and psychological impacts of sour gas facilities near people. Options may include improved communications and relationships between the industry and the public, or buffering techniques, such as landscaping and berming, where these do not create additional hazards.

Intent

To soften the visual impact and impressionable effects of sour facilities near people without inadvertently causing additional hazard.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC

Proposed Action Plan

Start date: February 2003

End date: April 2004

Preliminary work on Recommendation 8 got under way in February 2003 when graduate students at the University of Calgary were contracted to undertake a literature search on existing requirements and guidelines from other regulators and jurisdictions regarding reducing the visual and impressionable effects of industrial facilities. The literature search was completed and results were delivered to the EUB in March 2003.

After reviewing the results of the literature search and some methods for implementing requirements, the EUB requested that CAPP/SEPAC develop industry guidelines and recommended practices to mitigate potential visual impacts from sour gas facilities near people. CAPP/SEPAC are currently considering this request.

Recommendation 21: Review Requirements for Older Sour Gas Pipelines; Ensure There Is Adequate Attention to Corrosion Failures

The EUB review its requirements respecting older sour gas pipelines and the performance history of such pipelines to ensure that adequate attention is being focused on the possibility of corrosion-related or other types of leaks.

Intent

Ensure that pipeline requirements focus adequate attention on corrosion-related and other types of leaks.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, Canadian Environmental Protection Agency (CEPA), CSA

Action Plan

Start date: April 2002

End date: December 2003

The need to develop a protocol with a special focus on corrosion-related pipeline failures was previously identified through ongoing EUB pipeline leak monitoring prior to the PS&SG recommendations being made by the Advisory Committee. As a result, some work related to Recommendation 21 was already under way when it was reported as a new start in the *PS&SG Quarterly Report (April–June 2002)*. For example,

- *Guide 66: Pipeline Inspection Manual* was developed and implemented in November 2001.
- EUB Field Surveillance developed a program that prioritizes inspections based on previous operator history, sensitivity of the site, and the inherent risk of the facility. This OSI program for pipelines was implemented in April 2002 and continues to evaluate pipeline corrosion mitigation programs.
- The Canadian Standard Association (CSA) technical committee was asked to consider additional requirements for sour gas pipelines. This work was assigned to a technical subcommittee in December 2001.

A formal review of *Guide 66* and the OSI program implementation are continuing, as is the work with CSA to address unique requirements for corrosion on sour gas pipelines. The CSA workgroup is developing draft proposals for changes to CSA standards. Learnings from CSA workgroups will be used to develop supplemental regulatory requirements as required for sour gas pipelines. It should be noted that CSA's focus is on the increased emphasis on sour gas pipeline standards and only in part on corrosion. Therefore, the CSA work will be considered under this initiative in conjunction with the *Guide 66* and OSI program evaluations.

EUB policy may be modified based on the new CSA standards and the analysis of *Guide 66* and the OSI program.

Deliverable

The key deliverable for Recommendation 21 is requirements for addressing pipeline leaks with sufficient attention to corrosion-related failures, which includes updating *Guide 66*, the OSI program, and CSA standards.

Recommendation 22: Review Adequacy of Third-Party Damage Prevention for Sour Pipelines

The EUB implement stronger measures to safeguard against third-party damage to sour gas pipelines.

Intent

Provide options that may reduce the possibility of sour gas pipelines incurring third-party damage.

Lead Agency/Branch	*Stakeholders*
EUB Compliance and Operations	CAPP, SEPAC, CEPA, Alberta One Call

Action Plan Update

Start date: February 2001

End date: December 2003

This project addresses the prevention of damage by third parties to all pipelines, including sour gas pipelines. The third-party damage prevention regulation has been drafted and forms a small part of the overall review, restructuring, and updating of the Pipeline Regulation to require mandatory participation in Alberta One Call for all pipeline operators.

Comments have been received from external stakeholders and reviewed by the EUB. The EUB will be responding to stakeholders on these comments, and the proposed regulation changes will then be forwarded to the EUB Law Branch for review before being forwarded to Legislative Council for processing.

Deliverable

The deliverable for Recommendation 22 is improved regulations to help reduce third-party damage to pipelines.

Recommendation 23: Reclassification of Sweet Gas Facilities to Sour Service and Reactivating Older Sour Wells

The EUB review its requirements for approving the reclassification of sweet gas facilities to sour service and for the reactivation of older scur wells that have not been produced for ten or more years. In particular, attention should be focused on a review of production equipment and metallurgy, including tubulars and wellhead facilities, to ensure suitability for sour gas service.

Intent

To ensure that

- where a service change occurs from sweet to sour, there is in place a trigger mechanism to confirm adherence to sour gas requirements, and
- where sour wells and facilities have been inactive for an extended period, there are requirements in place for operators to properly suspend the well or facility and to confirm the integrity of production and well equipment prior to its return to service.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC

Proposed Action Plan

Start date: June 2003

End date: April 2004

The project team intends to

- establish or clarify the requirement(s) to obtain approval to change sweet facilities to sour service,
- establish or clarify the application approval process that incorporates these requirements,
- review current well suspension requirements to ensure that these adequately address reactivation of sour wells,
- adjust well requirements as needed,
- prepare and issue new facility suspension requirements to ensure that integrity of sour production equipment will be maintained while in a suspended condition, and
- provide for a review/approval process if necessary to reactivate a suspended facility.

Reviews of *Interim Directive (ID) 90-4: Suspension Guidelines for Inactive Wells* and suspension requirement needs for production facilities have begun.

Recommendation 24: Publicize Requirements to Convert Existing Pipelines to Sour Service

The EUB publicize the requirements to get an existing pipeline or well reclassified to sour service, in order to dispel the appearance that it is easy to do so.

Intent

Review and publicize the current requirements to convert existing pipelines to sour service.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, CEPA

Action Plan

Start date: April 2002

End date: January 2004

To date, the EUB project team has completed

- a review of current codes and standards for sour service for pipe, fittings, flanges, and valves,
- a review of related technical references on sour service requirements for pipelines, and
- an internal review of a draft EUB ID documenting sour service conversion requirements.

The draft ID will be circulated to industry stakeholders in October 2003 for comment.

Once all feedback has been received and considered, the new sour service requirements will be implemented through publication of the ID and publicized using an appropriate communications plan. It is anticipated that these requirements will be published by January 2004.

Deliverable

The key deliverable for Recommendation 24 is documenting requirements for converting existing pipelines to sour service and appropriate publicizing of these requirements.

Recommendation 30: Accelerated Enforcement Where Noncompliance Threatens Health and Safety

The EUB, when dealing with sour gas operations, consider alterations to the enforcement ladder to involve fewer and faster steps and more severe sanctions where there is a potential threat to public health and safety.

Intent

Consider alterations to the enforcement ladder to ensure fewer, faster, and more severe sanctions where there is a potential threat to public health and safety.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

PS&SG Advisory Committee, industry

Action Plan

Start date: April 2002

End date: November 2003

In fall 2001, the EUB Corporate Compliance Branch, along with SEPAC, CAPP, and other industry representatives, began a scheduled review of *Informational Letter (IL) 99-04: EUB Enforcement Process*. This Enforcement Review Task Group developed a revised draft ID, which was distributed to stakeholders for comment in fall 2002. In September 2002, the project team also clarified the intent of Recommendation 30 and confirmed that the findings of the Advisory Committee were being adequately addressed within the scope of the project.

Feedback on the draft ID was received from internal and external stakeholders in December 2002. The draft was revised and staff are in the process of finalizing responses to feedback, which will then be placed on the EUB Web site.

The draft ID will also be placed on the EUB Web site for additional feedback prior to finalizing due to the number of changes that have been made. Feedback received will again be considered when revising the draft and responses to feedback will be placed on the Web site.

A communication plan is currently being developed for the release of the ID.

Deliverable

The key deliverable for Recommendation 30 is an improved enforcement ladder that reflects public health and safety noncompliance matters.

Recommendation 50: Training for Alberta's Sour Gas Workers

The EUB, in conjunction with industry and appropriate educational institutions, confirm or establish the necessary requirements to ensure adequate training and knowledge of sour gas workers.

Intent

To ensure that workers in Alberta's sour gas industry have appropriate safety training to provide for the highest possible standards of worker and public safety.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, Canadian Association of Oilfield Drilling Contractors (CAODAC), Petroleum Services Association of Canada (PSAC), Petroleum Indsutry Training Service (PITS)

Proposed Action Plan

Start date: August 2003

End date: September 2004

A consultant has been contracted to gather information regarding the current type of safety training, courses, and certification required by Alberta acts and regulations that a worker must have to perform the necessary operational duties on sour gas wells, pipelines, and production facilities. This includes training needed to ensure public safety. The study will also assess whether the current delivery of training services is adequate and identify any additional training, courses, and certification that should be required. This study should be completed by December 2003.

Once this study has been completed, it will be reviewed with stakeholders. Discussions will be held to review and analyze any identified gaps in training and knowledge of sour gas workers. In conjunction with stakeholders, an action plan to address gaps will be prepared.

Recommendations 52 and 53: Setback and Setback Implication Review on Surface Development

52 - Once the framework and methodology for dispersion modelling and probabilistic risk assessment methodology have been developed (recommendation 17), the EUB use them as the basis for a review of the current criteria for sour gas setbacks.

- The review should be carried out by a stakeholder group including representatives of the relevant regulatory agencies, government departments, First Nations, Metis, municipalities, RHAs, the public, the land development industry, and the oil and gas industry.
- There should be some overlap in membership with the group studying dispersion modelling and probabilistic risk assessment.
- The review should address, among other questions, whether the current approach to setbacks is appropriate, the number of levels of categories is acceptable, and whether the actual setback distances are appropriate. It should also assess whether a common set of setback distances can be agreed upon by different jurisdictions.
- If changes to setbacks are to occur, the stakeholder group should address the appropriate manner for handling those situations where current facilities are based on existing approvals.

53 - The EUB should initiate a review of the implications of setbacks on the ability to develop property. The review should be carried out by the same stakeholder group noted in Recommendation 52 above to review the criteria of setbacks.

Intent

Verify the role of setbacks as a tool in risk management to protect public safety and assess the fairness of the restrictions and impacts on landowners.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, CEPA, Alberta Municipal Affairs, municipalities, public, RHAs, land development industry, First Nations and Metis community representatives

Action Plan

Start date: March 2003

End date: April 2005

Preliminary work has begun to gather historical data on the original purpose, criteria, and standards for the use of existing setback requirements as a tool to minimize risk and protect public safety.

Further substantive work cannot begin on Recommendation 52 until the *Protocol for Estimating Risk from Sour Wells, Pipelines, and Facilities* (Recommendation 17) is completed. Once this is available, the EUB team can

- evaluate existing criteria/standards for setbacks using the protocol, and
- define revised setbacks, if required, and determine how these new setbacks will apply to existing energy developments.

Internal EUB meetings have been held to discuss development of a terms of reference and an action plan to assess the economic impacts of setbacks (Recommendation 53). Work to address this recommendation is scheduled to begin by end of 2003.

Stakeholders will be invited to provide input as appropriate throughout the process.

Deliverable

The key deliverables for Recommendations 52 and 53 are a revised setbacks standard and related criteria, if the re-evaluation determines they are required, and a report outlining the impact of setbacks on land development.

Recommendation 78: Mutual Aid Agreements Where There Are Multiple Operators in an Area

The EUB encourage the development of mutual aid agreements where there are multiple operators in an area. This is also addressed in Recommendation 63. Consideration should be given to having one central contact for the public to contact respecting information requests, concerns, or complaints, rather than members of the public having to determine the operator responsible for the facility relating to the query.

Intent

Encourage development of mutual aid agreements where there are multiple operators in an area, and attempt to provide one central contact in an area for public concerns/complaints.

Lead Agency/Branch

EUB Field Surveillance

Stakeholders

CAPP, SEPAC, synergy groups, local government

Proposed Action Plan

Start date: April 2003

End date: March 2004

Where there are multiple operators in an area, the EUB Field Surveillance Branch will encourage the establishment of multistakeholder contact groups to provide a one-window concept for addressing issues. Where these groups do not exist, the contact database that will be developed in conjunction with Recommendation 77 will satisfy the intent of Recommendation 78.

Some identified steps in developing the one-window concept include

- identifying areas where potential synergy groups could be established,
- initiating discussions with operators in these areas to establish synergy groups,
- promoting the establishment of mutual aid agreements among existing synergy groups,
- ensuring that a database of synergy groups is monitored and kept up to date, and
- ensuring that synergy groups remain active and continue to promote contact with the public.

A comprehensive 32-question survey was developed and sent to more than 65 active groups dealing with issues related to oil and gas activities. The purpose of the survey was to

- determine the number of active community groups,
- better understand their issues,
- identify issues that have been resolved, and
- better support them through improved communication.

The results have been entered into an internal database, which will be maintained and updated by Field Surveillance. To date there are 48 active community groups in the database, with additional surveys still being completed and submitted.

Our definition of a community group is one that has organized to address specific issues related to oil and gas activities. This includes synergy, coalition, mutual aid, and multistakeholder groups. Letters are being sent to each community group in the database to follow up on information requested through the survey and to initiate better communication between the EUB and individual groups and also among the groups

themselves. A written process is being developed to ensure that the database will be maintained and updated and that communication needs of the individual groups are documented and followed up on.

Field Surveillance has initiated joint meetings involving EUB staff and multiple operators in sour fields. The purpose of these meetings is to bring the operators together to

- review EUB regulations and requirements,
- share and implement best practices to eliminate off-lease odours (e.g., transferring sour fluids in pressurized trucks, maintenance on sour vessels and storage tanks),
- establish mutual aid agreements to develop working relationships to monitor operations in the sour field,
- assist one another when operational problems are identified, and
- provide one central contact for public concerns.

The first area operators meeting was held on June 23, 2003, in Big Valley. Thirteen companies with sour facilities in the area attended. A presentation by the EUB included self-disclosure for noncompliance with regulations, EUB flaring policy, EUB enforcement ladders, and a review of *Guide 64: Facility Inspection Manual*. Information on best practices for transferring sour fluids and maintenance on sour vessels and storage tanks was shared.

Field Surveillance plans to try to organize a total of 14 joint meetings this fiscal year with operators in sour areas where there is currently no active community group.

Emergency Preparedness

COMPLETED

Recommendation 15: Follow-up on Major Releases of Sour Gas

The EUB, industry, Alberta Environment, Alberta Health and Wellness, regional health authorities, and federal regulators, as required, ensure that there is a thorough follow-up process after major sour gas releases (such as well blowouts or pipeline failures) to determine impacts and identify opportunities for response improvement.

Intent

To ensure a thorough assessment of the impacts of a major sour gas release and have the parties involved ensure continuous improvement in the prevention and response process.

Completion Statement

End date: September 2003

In March 2000, the EUB Board directed staff to develop a documented follow-up process to ensure timely EUB response, investigation, enforcement reporting, and follow-up on upstream petroleum incidents, such as well blowouts, pipeline failures, and flaring events. In response to the Board's request, the project team developed the *Incident Response and Reporting Protocol* (IRRP), which was adopted by the Board and issued as *Internal Guide 26* in January 2003.

As well, over the last year the *Alberta Upstream Petroleum Incident Support Plan* was reviewed and updated through a stakeholder process directed by Emergency Management Alberta (EMA). A new revision of the support plan was released by EMA in spring 2003. The new revision will be presented to stakeholders in a series of presentations by EMA during fall 2003.

Included in the support plan is Appendix Q: Follow-up Process after Major Sour Gas Releases to Determine Impacts. The appendix outlines a coordinated approach by provincial government departments and agencies to determine and communicate impacts to the public during a major sour gas release.

The EUB project team believes the combination of the EUB's IRRP and Appendix Q to the Alberta support plan meets the intent of PS&SG Recommendation 15.

The Compliance and Operations Branch considers this recommendation complete.

Performance Measures

Processes will be in place to ensure that all incidents are investigated and reported on by EUB field staff and other involved governments and for continuous improvement in prevention and response.

COMPLETED

Recommendation 66: Clarify and Coordinate Monitoring Roles and Responsibilities

The EUB, in cooperation with other emergency or episodic responders, ensure that the monitoring roles and responsibilities are clearly defined and that monitoring efforts and capabilities are coordinated.

Intent

To ensure that the air quality monitoring roles, responsibilities, and protocols of emergency and complaint responders are clearly defined, understood, accepted, and coordinated in order to respond quickly, determine if releases could have adverse impacts on public health and safety based on established standards, and if so, ensure that appropriate public protective measures are taken.

Completion Statement

End date: June 2003

AENV has taken the lead in ensuring that air monitoring needs and activities associated with public safety are adequately addressed and coordinated. These responsibilities are reflected in the updated government *Alberta Upstream Petroleum Incident Support Plan*, which details roles and responsibilities of all responders in the event of an upstream petroleum emergency. The plan, which is published by Alberta Municipal Affairs, EMA, and developed in conjunction with other government departments and agencies, was tested through a mock exercise held in October 2002, involving teams from the EUB, local and provincial governments, and industry. An assessment of the exercise took place and revisions to the document have been completed. The support plan was finalized in June 2003.

IL 98-01: A Memorandum of Understanding between Alberta Environmental Protection and the Alberta Energy and Utilities Board Regarding Coordination of Release Notification Requirements and Subsequent Regulatory Response is in place. This document sets out notification requirements for any release that may cause an adverse impact on the public, the environment, or property and also defines roles and responsibilities for responding to complaints and incidents.

Recommendations 55 and 56: Audit Process for Operator ERPs

55 - The EUB assess the capability of an operator to effectively implement an ERP at the time of application, and develop specific requirements to cover ERP validation through mandatory testing and exercises. This assessment should relate to financial capability as well as the operator's access to resources required to manage an emergency situation. The EUB should take into consideration the operator's compliance record and ability and willingness to effectively coordinate, communicate, and consult with EPZ residents and emergency service providers. Additionally, operators should be required to involve other responders, such as municipal authorities and RHAs, in exercises at least annually.

56 - The EUB audit existing ERPs on a more frequent basis to ensure that

- *the operator has the capability to implement its ERP,*
- *plans are updated according to requirements regarding frequency of updates,*
- *updating takes place immediately upon change of operatorship and prior to a new operator physically operating the facility, and*
- *adequate communication of updates with EPZ residents and emergency responders takes place*

Intent

To ensure that a process exists to assess the operator's capability to implement ERPs and maintain an appropriate level of emergency preparedness.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, Alberta Municipal Affairs, RHAs, local government authorities, public

Action Plan Update

Start date: April 2001

End date: September 2004

Work commenced on Recommendations 55 and 56 in mid-2001 with an evaluation of current EUB audit processes in place for operator ERPs to ensure that an appropriate level of emergency preparedness is maintained by industry and other responders. The EUB team called on internal stakeholders to provide additional input and to help define an audit process, specifically focusing on an operator's

- ability to effectively implement an ERP, and
- capability to maintain an appropriate level of emergency preparedness.

An ERP applications review protocol has been developed and is being used by EUB staff. An ERP audit/inspection protocol has been drafted and a pilot project to test the protocol is being developed. A safety audit consultant has been contracted to assist with planning and conducting the pilot project scheduled to begin in fall 2003. Stakeholder feedback regarding the process will be gathered throughout the pilot project, and where possible the protocol will be revised to address concerns. Once the protocol is finalized and fully implemented, audit and inspection compliance and noncompliance rates will be tracked.

Deliverable

The key deliverable for Recommendations 55 and 56 is an ERP audit process to ensure that operators can effectively implement ERPs and also maintain a sufficient level of emergency preparedness.

Recommendations 57, 63, and 64: Emergency Management Guide and Requirements to Coordinate Responder Roles

57 - The EUB require the operator to coordinate roles and responsibilities to be followed in the event of an emergency with other emergency responders through early and effective discussions with the municipal Director of Disaster Services, and the regional health authority's Medical Officer of Health, during plan development.

63 - The EUB encourage operators to establish mutual aid agreements in the areas with intensive industry development and multiple operators. This should include encouragement for operators to coordinate mutual aid with other industries (such as the forestry sector and petrochemical industries) in emergency response planning.

64 - The EUB continue its initiative to work with stakeholders to develop clear, complete, and concise guidelines and requirements for ERP development and implementation. In doing so, the following should be considered:

- standardizing the contents and format of ERPs as much as possible, including consideration of mandatory components and terminology;
- standardizing the requirements for a specific assessment of health impacts for emergency response planning;
- including site-specific conditions of wind, topography, population distribution, access and evacuation routes, livestock management, and other community issues;
- developing accurate resident information, including determination on a self-declaring basis of special needs persons requiring evacuation assistance or those hypersensitive to sour gases, and specifying more detailed requirements for resident information packages and the timing of their availability;
- referring critical sour gas well ERPs by the EUB to relevant municipal responders and regional health authorities at the application stage for comment regarding response capability;
- filing approved critical sour ERPs with the EUB, municipal emergency response agencies, and other emergency responders, including mutual aid groups where they exist;
- establishing criteria for introducing a planning zone that is reduced from that determined by the EUB's standard approach, clarifying the meaning of "immediate ignition," identifying additional public protective measures to be required to ensure public health and safety, and describing roles and responsibilities of responders within the reduced EPZ, the Awareness Zone, and other potentially affected areas beyond;
- annually reviewing and updating ERPs, including individual resident details and other users of land;
- establishing clear evacuation, ignition, and sheltering criteria, including criteria for when each of these measures would be considered acceptable;
- defining requirements for "post-event" debriefings and follow-up activities; and
- specifying how isolated communities and individuals (such as trappers, First Nations hunters, farmers, and transients) are planned for, including those where there is a lack of cellular coverage, which may cause communication delays.

Intent

Ensure that operators have clear, complete, and concise guidelines and requirements for ERP development and implementation that ensure an appropriate level of emergency preparedness. The requirements should reflect an approach based on the current state of scientific understanding and technology. Requirements must address the involvement of all responders.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, Alberta Municipal Affairs, RHAs, local authorities, public

Action Plan Update

Start date: April 2001

End date: December 2004

Work on Recommendations 57, 63, and 64 began in early 2001. In order to meet the intent, this project was divided into two phases:

- Phase 1—Consolidate existing IDs, ILs, and guides, along with new emergency preparedness requirements, into a single document. *Guide 71: Emergency Preparedness and Response Requirements for the Upstream Petroleum Industry* was issued in June 2003. Phase 1 of the project is now considered complete. As well, EUB staff are preparing a document to address frequently asked questions (FAQs) and will make this available on the EUB Web site and through other EUB information sources.
- Phase 2—Incorporate the deliverables from other PS&SG recommendations into *Guide 71*. In this phase, the project team will undertake a review of all aspects of public protection, including increased coordination of plans and enhanced mutual aid concepts currently used in the emergency preparedness requirements, and improve or supplement these measures where necessary to best ensure public safety.

Workshops were held on March 4 and 6, 2003, on ERP exercise testing requirements. A draft report on the findings from the workshop has been provided by the consultant to the EUB and is being reviewed.

The ability to ignite and to sustain ignition was a key issue raised by the public. Therefore, consultants were contracted and began a study in February 2003 to assess ignition criteria and timing. A draft of the ignition study is being prepared for review by the EUB.

Emergency Management Alberta (EMA) is developing a Shelter In Place Program (SHIP) framework for all types of disasters in Alberta. The EUB will participate in this program and will consider applying the shelter policy developed to sour gas.

When work is completed on exercise testing requirements, sheltering, ignition criteria, and other issues, such as the calculation of an EPZ based on the new *Protocol for Calculating Emergency Planning Zones for Sour Wells, Pipelines, and Facilities* (Recommendation 17), changes will be incorporated into *Guide 71*.

Phase 2 will be complete when these other issues are resolved and incorporated into *Guide 71* revisions.

Deliverable

The key deliverable of Recommendations 57, 63, and 64 is the comprehensive *Guide 71*, which will provide clear, complete, and concise requirements for preparing an ERP.

Recommendations 58 and 62: Review Process for Defining EPZs and Require That ERPs Show H_2S/SO_2 Evacuation Zones

58 - The EUB review the approach it uses for determining EPZs on the basis of the health effects information (Recommendation 9) and the review of dispersion modelling and probabilistic risk assessment methodology (Recommendation 17). The review of EPZs should be through a stakeholder process that includes involved government departments, municipalities, RHAs, the public, Aboriginal representatives, the land development industry, and the oil and gas industry. There should be some overlap in the membership of this review group and the group reviewing dispersion modelling and probabilistic risk assessment.

62 - The EUB require the operator to identify in the ERPs filed with the EUB and emergency response agencies, using dispersion modelling, the distance to where the mandatory evacuation levels for H_2S (20 ppm, 3-minute average) and SO_2 (5 ppm, 15-minute average) could be experienced.

Intent

Review current criteria used for establishing the size of EPZs and determine if changes are required.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

CAPP, SEPAC, Alberta Municipal Affairs, EMA, RHAs, public

Action Plan Update

Start date: October 2002

End date: March 2004

EUB internal discussions have taken place on a provisional strategy to address Recommendations 58 and 62, which are dependent on completing the work under way for Recommendations 17 and 18. These latter two recommendations provide the means to determine EPZs using state-of-the-art modelling and fulfill a large part of the intent of Recommendation 58. However, there are a number of topics that the EUB would also like to address as part of Recommendation 58, including

- explaining the new process to industry and public at large,
- reviewing existing emergency response terminology to better reflect the process of response planning and to aid in a clearer understanding of the purpose for the plans, and
- implementing the new requirements across industry.

The EUB is considering providing an overview document in the EnerFAQs series explaining the new protocols and the role they play in preparing to respond to an incident involving sour gas.

The current terminology has often led to public concern, especially when an EPZ smaller than the calculated size has been used even though other steps have been implemented to protect public safety. The new modelling takes into account prompt actions taken by industry, such as ignition to mitigate the consequences of a release of sour gas. The calculation of this primary response zone forms just one component of the comprehensive emergency response plan required by the EUB. Such plans extend beyond this initial area through cooperation with provincial and local authorities and emergency services.

The EUB anticipates having a two-tier approach to implementation of the new requirements. All new applications for well, pipeline, and facility licences must meet the new requirements immediately, in

accordance with *Guide 71*, with existing operations following suit as part of the annual ERP updates, also following *Guide 71*.

Recommendation 62 calls for operators "to identify in the ERPs filed with the EUB and emergency response agencies, using dispersion modelling, the distance to where the mandatory evacuation levels for H_2S (20 ppm, 3-minute average) and SO_2 (5 ppm, 15-minute average) could be experienced." This recommendation is being addressed under Recommendations 17 and 18, which calculate the distance to where the mandatory evacuation levels could be experienced.

Future revisions to *Guide 71* will be made to reflect the changes resulting from this work.

Deliverable

The key deliverable on this project is a revised and improved method for calculating EPZs.

Performance Measures

There are a number of outcomes that can be used to measure the success of this project:

- improved utilization of emergency responder resources as a result of more accurate EPZs compared to the existing simplistic methods,
- less confusion during public consultation and at hearings, since comparisons can be made to the EUB base cases, and
- an EPZ protocol that is the product of stakeholder involvement and is scientifically defensible, leading to improved confidence in EPZ distances.

Information, Communication, and Consultation

COMPLETED

Recommendation 71: Take Stringent Action for Poor Public Consultation

Stringent action, such as denying the application, be taken by the EUB for failure of a company to conduct effective public consultation programs.

Completion Statement

End date: September 2003

Completion Statement

In *Guide 56: Energy Development Applications and Schedules*, a number of items come together to form a comprehensive approach to participant involvement:

- new and expanded requirements for personal consultation and notification,
- expectations for communication with landowners,
- a set of questions to assist landowners during consultation (Recommendation 72), and
- guidelines for both landowners and industry.

It was a natural fit that this recommendation, along with the others related to public consultation, be integrated into the update of *Guide 56* released on October 1, 2003. In order to apply "stringent action" for poor public consultation, it was necessary to first define "good consultation" and then to develop clear requirements and expectations around that definition. Now that requirements are in place, it is possible to audit and to apply enforcement action cases of noncompliance.

Performance Measures

A performance measure is being developed that will address all three key elements of the participant involvement initiative: the new participant involvement requirements and expectations, the handbook, and the training roster.

COMPLETED

Recommendation 72: Questions to Assist the Public During Consultation

The EUB develop a list of suggested questions to assist the public during the public consultation process.

Completion Statement

End date: September 2003

The focus of Recommendation 72 is to produce user-friendly documentation to assist the public in understanding industry development proposals. As a result, the EUB has produced *EnerFAQs 8: Proposed Oil and Gas Development–A Landowner's Guide,* which includes a list of questions a member of the public may want to ask about an energy development proposal. As well, the EUB has developed more pamphlets in the EnerFAQs series to explain specific facets of facility, pipeline, and well projects. These documents are required to be distributed as part of a company's participant involvement program, as described in *Guide 56,* and are readily available on the EUB Web site.

It was a natural fit that this recommendation, along with the others relating to public consultation, be integrated with the update of *Guide 56*. When an energy company notifies or consults with the public about a proposed development, it must provide those people with EUB-required information, including *EnerFAQs 8*, as stipulated in the updated *Guide 56*.

Performance Measures

A performance measure is being developed that will address all three key elements of the participant involvement initiative: the new requirements and expectations, the handbook, and the training roster.

COMPLETED

Recommendation 79: Determine Local Net Benefits from Sour Gas Development

The EUB initiate a study involving industry, government, the public, and municipal representatives to determine the nature of local benefits, such as reduced property taxes and local business opportunities, to communities impacted by sour gas development.

Completion Statement

End date: September 2003

Recommendation 79 entails a study to determine the nature of local benefits from sour gas development. A stakeholder steering committee that involved industry, government, public, and municipal representatives was established to complete the study and prepare a report.

Members of the steering committee believed that in addition to evaluating benefits, it was also important to collect information on costs. Therefore, the committee proposed the following wording change to the intent for Recommendation 79:

> *The steering committee for Recommendation 79 will complete a study involving industry, government, the public, and municipal representatives to determine the nature of net financial benefits to communities impacted by sour gas development.*

Data collection and analysis for the study involved three steps:

1) calculation of the economic benefit in terms of employment, income, and secondary job creation from seismic, drilling, and gas processing activities associated with sour gas;
2) calculation of the net financial benefit to a select number of municipalities; and
3) identification of the negative impacts experienced by those most affected by sour gas development.

To measure economic benefit, the study used the input-output (IO) analysis technique. This technique is well developed, widely accepted, and provides a detailed "snapshot" view of the impacts an industry has on the level of economic activity within an economy. The analysis for this study was based on the year 2000, the most recent year for which all necessary data were available.

It is important to note that the issue of setback impacts was not included in this study. Since Recommendation 53 is to deal with the implications of setbacks, the steering committee believed the setback issue should be examined over an extended period of time and concluded that the setback issue warrants its own study that involves the relevant stakeholders.

The final report was published in September 2003 and is available on the EUB Web site.

COMPLETED

Recommendation 83: The EUB Consider Forming an Aboriginal Advisory Committee

The EUB consider forming an Aboriginal Advisory Committee or a series of regional advisory committees to better ensure that Aboriginal issues are recognized. Consideration should also be given to ad hoc committees to deal with specific issues.

Intent

To improve relations with Aboriginal peoples on all regulatory matters.

Completion Statement

End date: July 2003

The EUB has established an Aboriginal Advisory Committee involving senior leaders from within the Aboriginal community and the EUB. The purpose of the committee is to provide the EUB Board with advice and guidance on current Aboriginal issues and activities relating to energy and utilities development in Alberta. An initial meeting of the committee has been held to discuss its terms of reference. Annual meetings will be planned.

Recommendation 3: EUB/IOGC/INAC/First Nations Jurisdictional Issues

The working relationships established between the EUB and IOGC (Indian Oil and Gas Canada), IRC (Indian Resource Council), INAC (Indian and Northern Affairs Canada), and other relevant federal government departments recognize the different jurisdictional circumstances respecting First Nations.

Intent

To outline the mandate and responsibilities of the EUB, IOGC, INAC, and the IRC in relation to energy resource development on reserve lands in Alberta.

Lead Agency/Branch

EUB Law

Stakeholders

IOGC, INAC, IRC, other EUB Branches

Action Plan Update

Start date: September 2002

End date: September 2004

The EUB Law Branch has been examining the legislation, mandate, and jurisdiction of the EUB, IOGC, INAC, and IRC pertaining to energy resource development on reserve lands in Alberta and the types of working relationships the organizations have developed with one another, such as memorandums of understanding and other types of agreements.

Terms of reference discussing how the objectives of this recommendation and its dependent recommendations will be met have been drafted. A series of working papers that have examined the mandate, jurisdiction, and legislation of IOGC, INAC, and IRC over energy resource development on reserve lands in Alberta has been drafted. The Law Branch is currently identifying any gaps and overlaps between the agencies. This paper will be shared with other stakeholders in an effort to coordinate with related recommendations that are scheduled to start in year-three of PS&SG. After consulting with the other agencies, the team will develop terms of reference for meeting the objectives of all of the recommendations collectively, in order to develop a system for efficiently administering energy resource development on reserve lands in Alberta.

Recommendation 14: Awareness in First Nations Communities About Which Agencies Are Responsible for Health Services Related to Sour Gas

The EUB, First Nations, Health Canada, and regional health authorities ensure there is effective communication on the health services expectations of the various parties related to sour gas in the vicinity of First Nations communities.

Intent

To address the lack of information among Aboriginal communities on the question of "who is responsible for what" as it relates to sour gas and health impacts on Aboriginal people living near sour gas development. Some Aboriginal communities are not aware of information and services that are currently available, and this lack of awareness could lead to some issues not being adequately addressed.

Lead Agency/Branch

EUB Applications

Stakeholders

Aboriginal communities, Alberta Health and Wellness, First Nations and Inuit Health Branch of Health Canada

Proposed Action Plan

Start date: April 2003

End date: December 2004

The EUB Applications Branch will be working with stakeholders to develop information materials that will ensure that Aboriginal communities are fully aware of "who is responsible for what" as it relates to sour gas and health effects within their communities and to make sure this information is published and made available in a format useful to First Nations and Metis living near sour gas development. Information will include the scientific work under way on impacts of sour gas on human health.

Recommendation 14 is linked to Recommendation 34, whereby a mechanism is being established to facilitate dialogue among RHAs, the EUB, and Health Canada at the regional or field level. This process could serve as a model for addressing some of the issues identified in Recommendation 14 or could be adapted or expanded to include dialogue on these Aboriginal issues.

In April 2003, a consultant was hired to work with First Nations communities to identify their information and communications needs, with particular emphasis on health and safety issues associated with sour gas development. The consultant will also work with the team to identify solutions and mechanisms for filling communications and information gaps.

During the summer, the consultant visited health centres in four First Nations communities and interviewed their staff to determine their level of awareness of sour gas issues and the kind of communications that could be used to fill information and communications gaps. The consultant also met with staff from Health Canada's First Nations and Inuit Health Branch to compile information on services currently delivered to First Nations communities.

In August 2003, EUB staff met with Alberta Health and Wellness and Health Canada to finalize the terms of reference and work plan for this initiative and to clarify the linkages with work being conducted on other PS&SG recommendations.

The team agreed that clarification on a go-forward basis is needed about health services currently delivered and the expectations of people in First Nations communities for effective information about these services. A successful outcome would be to develop solutions for getting this information into the hands of community members and possibly using health clinics on reserves to reach community members.

During September and October 2003, the consultant will prepare a preliminary report that will include a gap analysis and some recommendations for solutions that could be used to fill the communications and information gaps. As work proceeds to develop solutions, further input will be sought from First Nations communities.

By December 2003, the team plans to have a preliminary report, including some draft recommendations, prepared.

Recommendation 16: Review, Organize, and Enhance Access to EUB Data

The EUB review and organize its existing large quantity of sour gas data on well, pipeline, and facility leaks, ruptures, flares, and venting to provide a historical database that is accurate and complete, and, in conjunction with other stakeholders, urgently develop and maintain new databases that deal specifically with sour gas, and make such databases available to the industry and the public. Databases should be accurate and comprehensive and include data on sour reservoirs, failures, release occurrences, release rates, enforcement actions, and continuous improvement. Recognizing that the databases can be only as good as the raw input data, there should be regulatory requirements that support the accuracy and submission of related information. The Committee acknowledges that implementation of this recommendation is likely to be costly in terms of initial development and continuous maintenance but believes it is critical to the process.

Intent

Ensure that the EUB has a comprehensive sour gas database that is accurate, complete, and available to industry and the general public.

Lead Agency/Branch

EUB Resources

Stakeholders

Public, industry, government

Action Plan Update

Start date: April 2001

End date: December 2005

The objectives of Recommendation 16 are to ensure that sour gas data are

- comprehensive and validated,
- organized on databases using current technology,
- readily accessible to EUB staff using up-to-date data analysis tools, and
- disseminated to the public, government, and industry.

The project team has been organizing existing EUB data and collecting new data for storage in EUB databases. The data can be accessed through geographic information system (GIS) technology and made available to the outside world through Internet access.

The project is split into two subprojects: data storage and Web site access.

The data storage project has achieved the following during this reporting period:

- Development of software to download well test data from the mainframe database to the client server database has been completed. The client server database is being updated nightly.
- Analysis of the depth data problem is complete. Software to correct the data problems on the mainframe database is almost complete.
- Several thousand keypunched gas analyses data were loaded into a client server database. A system to permit Resources Branch staff to review and correct the data has been developed.
- The sour gas maps are being migrated from old to new technology.

The GIS Web site access project has achieved the following:

- Initial testing was conducted with a small group of internal EUB staff.
- The Web site is complete and as of September 2003 is in "beta test" mode. Beta testing is being managed by the Communications Group in conjunction with Recommendation 73 (Sour Gas Information Office) and involves a controlled release to larger numbers of EUB staff and to some synergy groups. This is anticipated to be completed this calendar year, with full public rollout to follow, subject to review of the data and security implications by the EUB Security Manager.
- While the initial rollout of this Web site is planned prior to December 2003, we anticipate that the beta testing by various user groups will result in the identification of new types of data that will make the Web site more useful. These enhancements will be addressed in a priority sequence as time and resources permit.

Deliverables

The key deliverables for Recommendation 16 are a set of complete, accurate, and up-to-date databases of sour gas information that are accessible to internal EUB staff and external stakeholders. Access may be restricted externally where there are security implications.

Performance Measures

The EUB GIS Web site will undergo ongoing maintenance and enhancements based on user feedback, and the accuracy of the database will continue to be reviewed and improved as necessary.

Recommendation 31: Increase Availability of Information on Enforcement Actions

The EUB increase the extent to which it makes available the names of companies and the enforcement actions taken where there are major and serious infractions, as defined by the enforcement ladder, of sour gas regulations related to public health and safety. The EUB should continue recognizing those companies with outstanding records by appropriately reducing surveillance. It should also consider, along with industry and government, different ways in which recognition or further incentive could be provided to those whose records are exemplary and who continuously exceed expectations.

Intent

The EUB increase the extent to which the names of companies and the enforcement actions taken are available where there are major and serious infractions, as defined by the enforcement ladder, of sour gas regulations related to public health and safety.

Lead Agency/Branch

EUB Compliance and Operations

Stakeholders

PS&SG Advisory Committee, CAPP, SEPAC, industry

Action Plan Update

Start date: September 2001

End date: June 2004

In early 2002, the Compliance and Operations Branch proposed a process for reporting enforcement actions on all level-3 and -4 noncompliance events. The draft process was reviewed by CAPP and SEPAC representatives, as well as internal EUB stakeholders. A revised protocol was developed, however, but it continues to raise concerns from industry representatives about the publication of the enforcement actions. The EUB has decided not to begin publication of this information until industry's concerns are resolved.

While these concerns are being addressed, the EUB will continue to test its in-house process to compile high-level enforcement information. The EUB will also continue its current practice of making level-4 enforcement information available on its Index of Board Orders when Orders are issued.

Deliverable

The key deliverable for this recommendation is a monthly report of high-level enforcement actions.

Recommendations 45 and 47: Perception of the EUB's Neutrality

45 - The EUB place greater emphasis on the need for its involved staff to be neutral when dealing with the public and industry respecting inspection results, complaints, and the resolution of concerns. This may require special training.

47 - The public be made aware of the clear distinction between Alberta Resource Development's role of promoting the development of Alberta's resources and the role of the EUB as a regulator that ensures that if developments are approved they take place in a manner that is in the public interest.

Intent

The EUB must first understand stakeholder perception of the EUB's neutrality in carrying out its mandate. It then must take steps to make improvements where gaps exist in the public's understanding and perception of the EUB's neutrality.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, public, industry

Action Plan Update

Start date: July 2001

End date: December 2005

The EUB has developed a three-year strategic communication plan to address a number of the issues identified by the Advisory Committee, including determining the public perception of EUB neutrality, communicating the EUB's role in regulating the energy industry, and reinforcing the EUB's commitment to ensure public safety.

In this regard, several steps are being taken:

- EUB staff neutrality training programs are being developed.
- MLAs are being visited in combination with other communications initiatives or when issues arise that demand immediate communication with a local MLA. A function of these visits is to reinforce the EUB's role as an impartial, neutral regulator.
- In order to enhance public awareness of the EUB and its role as a neutral regulator, a working relationship with the Alberta Weekly Newspaper Association was developed. The project team sees a clear need to use mass media, particularly in rural areas, in order to have a positive impact on Albertans' views of the EUB. The EUB has purchased membership in the Alberta Weekly Newpaper Association, with whom we are working closely to develop communications relevant to its wide rural readership.
- In 2002, the EUB began media training for several staff members, which proved to be both popular and effective. Training for additional staff is continuing. This training offers a focus on speaking clearly about the EUB's role as a neutral regulatory agency, independent from government.

Deliverables

- Raising public awareness of the EUB through increased profile in rural weekly newspapers.
- Increasing public awareness of the EUB as the neutral, unbiased regulator for Alberta's energy and utilities industries through membership in the Alberta Weekly Newspaper Association.
- Annual stakeholder satisfaction survey.

Performance Measures

The number of articles about EUB-related matters appearing in weekly newspapers and opportunities to speak with editors of weekly papers.

Annual stakeholder satisfaction survey.

The EUB Communications Group tracks the effectiveness of delivering messages to the public regarding the role of the EUB. This tracking will continue.

Recommendation 46: EUB Role as Regulator for Public Safety

The EUB place greater emphasis on its role as a regulator to protect the public and provide a higher profile for its involvement in matters related to public health and safety. One option for achieving a higher profile that might be considered could be the creation of a public health and safety department within the EUB.

Intent

The EUB must reinforce and support its commitment to public safety on a continuous basis. The Advisory Committee commented that one option could be the creation of a public health and safety department within the EUB. There is a further link to the Advisory Committee's "*concerns that performance measures be put in place to ensure that the actions taken do in fact fulfil the intent of each recommendation, and that these continue to remain effective once in place.*" This is a quote from page 2 of the 2003 Advisory Committee's *PS&SG Evaluation Report.*

Lead Agency/Branch

EUB Public Safety Implementation Team

Stakeholders

EUB, public, industry

Action Plan Update

Start date: July 2001

End date: March 2006

This recommendation was previously clustered with Recommendation 45 (EUB neutrality) and 47 (Distinction between DOE and EUB in resource development).

As stated above, the Advisory Committee's December 2000 report states: "One option to be considered could be the creation of a public health and safety department within the EUB." It has become clearer that as significant progress is made on all PS&SG recommendations, there may be a need for the EUB to form an ongoing public safety team that could evolve from the current Public Safety Implementation Team (PSIT).

PSIT Original Role: Oversee, administer, and manage the PS&SG initiative. Achieve the goal of having all 87 recommendations acted upon according to the intent of the PS&SG Advisory Committee, while maintaining reasonable expectations and ensuring that the recommendations stay within the EUB's mandate and jurisdiction.

Currently Evolving Role: Ensure that as developmental work progresses, there is regulatory congruence between related recommendations. To manage, guide, and administer the development and implementation of the recommendations in a sustainable, measurable manner. To manage, assist with, and in some cases produce acceptable outcomes, performance measures, and indicators.

Eventual Ongoing Role: Develop and implement an ongoing system to measure results of processes put in place to address the 87 recommendations and other nonmandated sour gas and conventional oil and gas public safety issues. Adapt to changing environments and expectations, sustain the successful, enhance the less successful, correct the not successful, and assist the EUB in maintaining a state-of-the-art sour gas and conventional energy development public safety regulatory regime in order to serve the public interest.

PSIT is now evaluating these changing roles and will be formulating a discussion paper and/or action plan for review and comment by stakeholders prior to the end of fiscal year 2003/04.

Recommendation 51: Use of Best Practices in Sour Gas Development

The EUB, along with industry and government, investigate methods that will result in greater encouragement for all industry management to take sour gas issues and concerns more seriously and to impart this position and attitude to all company and contract personnel involved with sour gas operations.

Intent

To ensure that industry not only uses best technical practices, but also reflects best attitudes and corporate philosophies in its approach to sour gas development, particularly as these relate to public health and safety.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, industry

Proposed Action Plan

Start date: September 2003

End date: March 2004

The Advisory Committee is asking for industry commitment to ensure a responsible and proactive approach to sour gas development as it relates to the overriding concerns of public health and safety. The EUB will evaluate the training, operating practices, and emergency preparedness policies that the industry uses to ensure the safe development and operation of sour gas and will make recommendations for improvements if any deficiencies are found.

The EUB is beginning this work by establishing a baseline of current industry sour gas practice through personal interviews with management of large, mid-size, and small oil and gas companies and evaluation of their training, emergency preparedness, and operations policies. Depending on the results of the study, recommendations for improvements will be made or the baseline study will acknowledge that the current sour gas practices are in compliance with EUB requirements.

Performance Measures

If the baseline study shows there is room for improvement, an annual survey would have to be done to measure whether progress was being made.

Recommendations 69, 70, and 74: Establish EUB Public Consultation Staff Resource Team

69 - The EUB establish a staff resource team that focuses on public consultation to assist industry in providing a more consistent approach to public consultation, including consultation with Aboriginal people.

70 - The team referred to in recommendation 69 work with CAPP, training institutions and other industry associations to develop public consultation training programs that reflect EUB requirements and expectations for public consultation and that incorporate training in the practices set out in the CAPP Guide for Effective Public Involvement.

74 - The EUB initiate, in conjunction with industry and training institutions, the development of effective communications training programs for those individuals responsible for communicating with the public respecting the technical aspects of sour gas. Examples of programs would include risk communication methodology and emergency response consultation.

Intent

Improve industry awareness of and compliance with EUB participant involvement expectations and requirements. Ensure consistent participant involvement practice through monitoring and training programs, thereby improving relationships among industry, the public, and the EUB. Work with stakeholders to set participant involvement standards and develop training courses for participant involvement and technical communication.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, industry, public

Action Plan Update

Start date: January 2001

End date: December 2005

In 2002, Recommendations 71 and 72 were added to this group of recommendations. Implementation of these two recommendations has now been completed and is reported separately.

The emphasis of this group of recommendations is to clarify the EUB's requirements for participant involvement with improvements to monitoring and enforcement.

Recommendation 69 focused on revising participant involvement requirements and expectations. These have now been included in *Guide 56* and are directly related to both the EUB applications audit process and the enforcement ladder. When the revised *Guide 56* is issued in October 2003, *IL 89-04: Public Involvement in the Development of Energy Resources* will be superseded by the participant involvement sections in *Guide 56*.

A participant involvement handbook is currently under development, with stakeholder review planned for early 2004.

The participant involvement training roster is at the conceptual stage and will be guided by a multistakeholder advisory committee. Since the delivery of training for industry is not within the EUB's mandate, the roster will fulfill Recommendations 70 and 74 by ensuring both that training is available and is congruent with EUB requirements and that it is developed in partnership with relevant stakeholders. The roster will be modelled after the highly successful mediator roster of the Appropriate Dispute Resolution program. This is *not* a certification program for participant involvement trainers. The roster advisory committee will collectively determine the criteria that

potential trainers will have to meet, but all applicants to the roster are expected to possess relevant qualifications when they apply.

Performance Measures

A performance measure is being developed that will address all three key elements of the participant involvement initiative: the new requirements and expectations, the handbook, and the training roster. It will involve internal groups with related responsibilities.

Recommendation 73: Establish EUB Information Office

Formation of an information office located within the EUB and supported by a stakeholder committee, to provide accurate, reputable, neutral information related to sour gas development and to be a key contact for referring the public to sources of additional relevant, reputable information. The objective would be to work toward building trust and understanding among industry, the public, and the EUB to liaise with stakeholder groups throughout the province. The existence of this information office and its role should be widely publicized and the office should be easily accessible to the public. Advertising could possibly take place through distribution of initial information packages provided to the public during public consultation and through EUB field centres and the EUB Web site.

Intent

Improve public and energy industry access to unbiased information and key contacts. Disseminate information in a variety of formats, including liaising with stakeholder groups throughout the province.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, public, industry

Action Plan Update

Start date: October 2001

End date: December 2005

As identified in discussions with the Advisory Committee and the EUB's First Nations consultant in November 2001, any information directed to the public must be accurate, reliable, and up to date. As well, information must be easily accessible.

The intent of this recommendation, to provide information in a variety of formats, is actually met by a number of recommendations, including 75 and 81. After much research into such things as call centres and other approaches with wide public profile, Communications staff believe that the PublicZone Web site best fulfills the intent of this recommendation. The EUB manages the largest energy database in the world, but much of it is highly technical and difficult for the public to access. By using a more visual and less text-heavy approach to the PublicZone, the EUB expects it to have broad appeal to the general public, students, and teachers, as well as industry.

Many other recommendations are resulting in the development of significant amounts of clear, succinct, unbiased public information and in the development of other actions that will significantly influence Recommendation 73. For example, Recommendation 81 has seen the development of a significant amount of new information in a variety of formats. Recommendation 76 calls for the preparation of "clear, understandable" technical information, and Recommendation 80 will see further work done with synergy groups across the province. All of the new information coming from the PS&SG initiative must be made publicly available and be easy to access.

The PublicZone Web site is progressing in two complementary, parallel tracks: Web design and development, and content development. Web design includes the organization, navigation, structure, and graphics. The PublicZone teams and that for Recommendation 16 on GIS continue to work closely together.

The PublicZone team is currently assembling a group of internal technical experts to act as content advisors for this project, prior to the Web site going out for public testing.

Recommendation 73 also calls for the formation of an external advisory committee, which will be struck once the initial specialized Web site planning stage is complete.

Performance Measures

The most likely method of assessing Web site effectiveness and user satisfaction will be to administer on-line surveys and to track incoming questions and enhancement requests from users.

Recommendation 75: Raise Public Awareness and Understanding of Sour Gas Issues and Provide Information to All Albertans

The EUB conduct information sessions, workshops, and panel discussions involving the public, industry, and other stakeholders specifically focusing on raising awareness and understanding of sour gas developments, rights of surface and subsurface owners, and how the EUB determines the public interest in making decisions on applications.

Intent

To increase public awareness and understanding of sour gas issues and to provide credible information to all Albertans.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, public, industry

Proposed Action Plan

Start date: July 2003

End date: December 2005

Recommendation 75 is a broad, ongoing commitment to stakeholder education, training, and information dissemination.

The EUB will address this recommendation by developing programs to conduct information sessions, workshops, and panel discussions for the public, industry, and other stakeholders about sour gas-related issues and EUB decision-making processes.

As this is an education-related recommendation, our deliverables are to produce informational materials and to conduct information sessions for all stakeholders, internal and external. Appropriate stakeholders, depending on the topics, will be invited to participate in the sessions when they are held.

One of the specific actions currently under way is producing an education kit for Aboriginal youth that will demonstrate the parallels between traditional decision-making processes and that of the EUB hearing process.

Progress is dependent on other PS&SG recommendations (such as Recommendations 76 and 80) to develop information, operational plans, and vehicles for increasing public awareness and understanding of the EUB. The EUB Business Plan does not currently provide for an ongoing role as a public educator. In order for the full intent of Recommendation 75 and others like it (Recommendations 45, 51, 76, and 80) to be met, the EUB will examine its role as a public educator and/or public information provider.

Performance Measures

Annual stakeholder satisfaction surveys.

Attendance at information sessions.

Recommendation 76: Raise Public Awareness and Understanding of Sour Gas Issues and Provide Clear, Understandable Information to All Albertans

The EUB prepare material providing clear, understandable information on technical matters such as ERPs, EPZs, setbacks, rights of surface and subsurface owners, risk communication, and hazard and risk assessment.

Intent

To increase public awareness and understanding of sour gas issues and to provide credible information to all Albertans by making clear, understandable information available.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, public, industry

Proposed Action Plan

Start date: July 2003

End date: December 2005

The mandate of this recommendation is extremely broad and requires an ongoing commitment to stakeholder education, training, and information dissemination.

New information materials will be researched, developed, and presented in appropriate formats, including print, Web, CD-ROM, video, and Web casting. Once created, these materials will be maintained on an ongoing basis. The EUB will attempt to move away from text-heavy paper documents.

To move forward with Recommendation 76, the project team will

- purchase required software and hardware resources to develop and maintain information materials,
- develop materials,
- research alternative message delivery methods, and
- investigate promotional items that may help raise public awareness of the EUB.

Performance Measures

Materials related to Recommendation 75.

Number of *Petroleum Play* and *Power Play* booklets requested and sent.

Stakeholder response to our participation in Alberta Innovation and Science's Science Week, October 2003.

Recommendation 77: Information on Key Operator Contacts, Telephone Numbers, and Facility Locations

The EUB field centres identify key operator contacts, telephone numbers, and locations of facilities and provide this information to the public in order to enable them to more efficiently contact appropriate industry officials regarding a development in their area, if they require information or have concerns. This information would need to be updated regularly and the public advised of changes.

Intent

Field Surveillance regularly identify key operator contacts, phone numbers, and facility locations to enable the public to more efficiently contact industry regarding information and concerns.

Lead Agency/Branch

EUB Field Surveillance

Stakeholders

EUB, public, industry, Corporate Support Branch

Proposed Action Plan

Start date: April 2003

End date: March 2004

EUB staff believe that the intent of Recommendations 16 and 77 is very similiar. Recommendation 16 is to develop a GIS database including all the wells, pipelines, and facilities in Alberta and identify the licensee for each one. This database will be posted on the EUB Web site and will be available to industry and the public. To meet the intent of Recommendation 77, the EUB intends to add the licensee key contact information to this database.

The EUB currently has a database accessible on its Web site that lists all licensees with their addresses and main telephone numbers. Costs and resourcing estimates are being discussed to modify and interface the two databases so that the mailing address and phone number can be added to the GIS database being developed under Recommendation 16.

The team recognizes that not everyone has a home computer or Internet access from home. Members of the public do have other options available, however. These include using municipal library computers or making a telephone call to the closest EUB Field Centre. Other telephone, fax, or written options will be considered as well.

Recommendation 80: Ongoing EUB Relationships with All Albertans

The EUB put greater emphasis on developing relationships with all of its stakeholders. This might involve the holding of more EUB open houses, making staff more readily available to participate in meetings of concerned citizens, and making presentations about its role to interested groups throughout Alberta. This is also addressed in Recommendation 75.

Intent

The EUB effectively contact and establish ongoing relationships with the public of Alberta and other stakeholders.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, public, industry

Proposed Action Plan

Start date: July 2003

End date: December 2005

The following steps are being taken to address this recommendation

- Synergy roundtable: Second annual synergy event involving community, industry, and regulatory members will be held in October 2003.
- Synergy database has been developed to track active community-based groups and their information needs so that the EUB can open long-term channels of communication with each group.
- Provincial EUB awareness campaign in weekly papers is being developed to reach as many rural Albertans as possible. This could take the form of paid advertising or an information insert, similar to a brochure.
- A recognition program for companies, communities, and individuals that meets the spirit of synergy participant involvement, not just minimum requirements, is being considered.

Recommendation 80 has a broad scope. Effectively fulfilling the intent depends on the work of other PS&SG recommendations, such as the planning and delivery of educational materials (Recommendations 76 and 81) and effective delivery platforms (Recommendations 51 and 75).

Work is already progressing to improve relationships through many of these other initiatives.

The need for a publicly based synergy network to assume a role in relationship building surrounding this and other PS&SG recommendations has been identified. Similarly, there is a clear need to use the media to inform Albertans about the EUB and the strong, valuable work being done under the PS&SG initiative.

Performance Measures

Annual stakeholder satisfaction survey.

Synergy roundtable delegate evaluations.

Recommendation 81: Public Consultation Materials—Role of EUB

The EUB develop a brochure for the public that focuses on the role of the EUB and provides contact names and phone numbers to be given out when industry does public consultation. It should also be widely distributed to all interested parties, such as municipalities, and posted on the EUB Web site. The brochure must be clear and succinct, and be kept up to date. Consideration should be given to having a brief summary brochure for those with limited interest and a more detailed one for those with greater interest.

Intent

Develop and make readily available a brochure providing comprehensive information on the role of the EUB.

Lead Agency/Branch

EUB Corporate Support

Stakeholders

EUB, public, industry

Action Plan Update

Start date: January 2001

End date: December 2005

Recommendation 81 focuses on providing information to the public about the many roles the EUB plays in serving the public interest with regard to energy development. Two new videos were produced and aired on Access TV last spring and this fall: one on the role of the EUB and the other on the applications and the hearing process.

An assessment of the needs regarding public consultation materials in three pilot First Nations communities is under way. Additionally, the EUB is planning an educational program aimed at Aboriginal youth to raise awareness of the EUB's role.

Over the next 12 months the following new projects will be developed or considered:

- The *Power Play* booklet and Web page to be added to the KidZone Web site: This is a follow-up to the very successful *Petroleum Play* booklet and will focus on electric utilities and coal mine operations. The *Power Play*, the second in the planned series of children's activity booklets, is scheduled to be completed in November 2003, with the attendant additions to the KidZone Web site by year's end.
- An EUB history book or video is being considered. This would be a factual account of the EUB's colourful and extremely significant history, with a focus on people and events.
- Communications is also working with Human Resources to develop recruiting materials related to the role of the EUB.

Performance Measures

Teacher usage and Web site visit counts are used to measure the effectiveness and desirability of both the *Petroleum Play* and *Power Play* booklets and the Eye on Energy, the Science-in-a-Crate initiative started last year in partnership with the Science Alberta Foundation.

Recommendation 82: Communications Systems Among First Nations, EUB, and Industry Operators

The EUB engage appropriate staff, including First Nations persons, to ensure more interaction among the EUB, Aboriginal people, and industry (including contractors). These staff would ensure that cultural awareness sessions are conducted for EUB staff and that informational sessions are conducted for Aboriginal people, specifically focusing on building understanding of sour gas development. Important issues to be addressed include isolated communities, communications systems, and language barriers.

Intent

Improve communications systems among First Nations and Metis communities, the EUB, and industry operators in isolated communities and where language may be a barrier.

Lead Agency/Branch

EUB Field Surveillance

Stakeholders

IOGC, First Nations and Metis communities/groups

Proposed Action Plan

Start date: April 2003

End date: March 2004

Forty-four Aboriginal communities/groups have been visited thus far. All issues under EUB jurisdiction have either been addressed or are in the process of been dealt with. Whenever meetings are held in an Aboriginal community, they are coordinated with IOGC to explain the roles and responsibilities of each organization. The process seems to be working well.

Generally, the first meeting held is with the Chief and Council of First Nations communities and with the Chair and Executive of Metis communities. The relationship process is further strengthened with follow-up meetings between the EUB Field Centre representative and the oil and gas contact from each community. This allows the working groups to address specific issues. Since this process has started, there have been as many as 10 follow-up meetings or visits with some communities.

In communities where sour gas is prevalent and/or in isolated communities, more discussion and information has been required; however, all the concerns in those communities appear to have been addressed.

EUB staff have subjectively rated the relationship with each Aboriginal community prior to these visits based on factors such as whether communities knew about the EUB, its 24-hour emergency number, etc. Staff will continue to rate the relationship every year. This information will assist with knowing which communities to focus on and what areas to address within the community.

A survey has been drafted that will be sent to Aboriginal communities in late 2004, so that we can get feedback from the communities on the effectiveness of our communication program and where we need to improve our service.

This work will be incorporated into the Field Surveillance 2004 business plan, and relationship building will continue with Aboriginal communities and groups.

Preliminary steps have included

- improving cultural awareness on the part of EUB staff,
- providing information on sour gas developments to Aboriginal communities,
- documenting and outlining the roles and responsibilities of all stakeholders, and
- identifying and addressing communications issues in First Nations and Metis communities.

In addition, the EUB has

- tracked and reported on the number of First Nations and Metis communities being contacted, and
- documented issues when identified and tracked the progress made to resolve issues.

Appendix: Acronyms and Abbreviations

AAFRD	Alberta Agriculture Food and Rural Development
AAMD&C	Alberta Association of Municipalities, Districts and Councils
AENV	Alberta Environment
AHW	Alberta Health and Wellness
ARC	Alberta Research Council
CAPL	Canadian Association of Petroleum Landmen
CAPP	Canadian Association of Petroleum Producers
CAODC	Canadian Association of Oilfield Drilling Contractors
CEPA	Canadian Energy Pipeline Association
CSA	Canadian Standards Association
DOE	Department of Energy
EMA	Emergency Management Alberta
EPZ	emergency planning zone
ERP	emergency response plan
EUB	Alberta Energy and Utilities Board
H_2S	hydrogen sulphide
ID	interim directive
IL	informational letter
INAC	Indian and Northern Affairs Canada
IOGC	Indian Oil and Gas Canada
IRRP	Incident Response and Reporting Protocol for Upstream Petroleum Incidents
IRC	Indian Resource Council
MOHs	Medical Officers of Health
OSI	operator history, site sensitivity, inherent risk
PITS	Petroleum Industry Training Service
PS&SG	Public Safety and Sour Gas
PSAC	Petroleum Services Association of Canada
PSIT	Public Safety Implementation Team
RHA	Regional Health Authority
SEPAC	Small Explorers and Producers Association of Canada
SO_2	sulphur dioxide